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Minn. Hort. Society.

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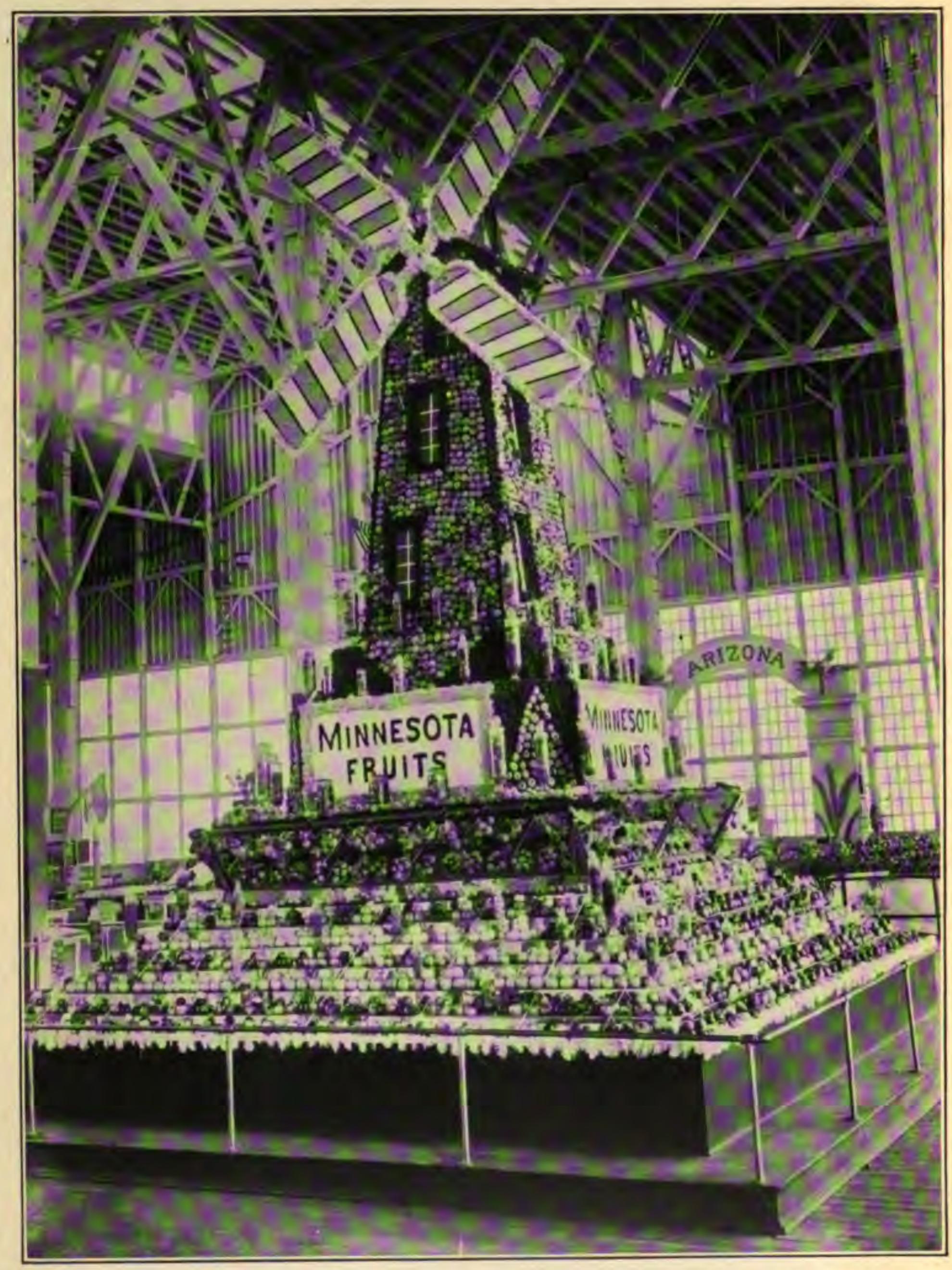

THE "WINDMILL EXHIBIT" OF MINNESOTA FRUITS, MAINTAINED AS A PART OF THE MINNESOTA FRUIT EXHIBIT AT THE WORLD'S FAIR DURING THE FALL MONTHS.
See Report of World's Fair Fruit Exhibit in February, 1905, "Horticulturist."

Trees, Fruits and Flowers

—OF—

MINNESOTA.

1905.

EMBRACING THE TRANSACTIONS OF THE

MINNESOTA STATE HORTICULTURAL SOCIETY

FROM DECEMBER 1, 1904, TO DECEMBER 1, 1905, INCLUDING THE TWELVE NUMBERS OF THE "MINNESOTA HORTICULTURIST" FOR 1905.

EDITED BY THE SECRETARY,
A. W. LATHAM,
OFFICE AND LIBRARY, 207 KASOTA BLOCK,
MINNEAPOLIS, MINN.
Official Stenographer, A. G. Long, Excelsior, Minn.

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1905.

THE MINNESOTA HORTICULTURIST.

VOL. 33. JANUARY, 1905. No. 1.

OFFICERS, 1905,
MINNESOTA STATE HORTICULTURAL SOCIETY.

President.

Clarence Wedge ....Albert Lea

Vice-Presidents.

First Congressional District........Robert Parkhill, Chatfield
Second Congressional District ....Fred Mohl, Adrian
Third Congressional District......J. F. Benjamin, Hutchinson
Fourth Congressional District........W. J. Tingley, Withrow
Fifth Congressional District..............J. O. Weld, Mound
Sixth Congressional District......W. H. Eddy, Howard Lake
Seventh Congressional District......G. A. Anderson, Renville
Eighth Congressional District......F. M. McLeran, Wrenshall
Ninth Congressional District......L. Johannessohn, Beltrami

Treasurer.

A. B. Lyman ....Excelsior

Executive Board.

(The president and secretary are members ex-officio.)

Wyman Elliot (Chairman), 2 years ....Minneapolis
Frank Yahnke, 2 years ....Winona
John P. Andrews, 3 years ....Faribault
Lycurgus R. Moyer, 3 years.........................Montevideo
Prof. Samuel B. Green, 1 year..............St. Anthony Park
J. M. Underwood, 1 year...........................Lake City

Secretary.

A. W. Latham ....Minneapolis

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Address business communications and all remittances to the secretary.

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Assistant Librarian.

E. A. Cuzner.................37 27th Ave. S. E., Minneapolis

(The assistant librarian has charge of the surplus reports of the society, which are stored at Pillsbury Hall, State University. A part of the reports are stored in Horticultural Hall, at the State Experiment Station, in charge of Prof. S. B. Green.)

SUPERINTENDENTS OF TRIAL STATIONS, 1905.

Prof. S. B. Green (State Experiment Station)	St. Anthony Park
T. E. Cashman	Owatonna
Dewain Cook	Windom
O. M. Lord	Minnesota City
A. B. Lyman	Excelsior
F. I. Harris	La Crescent
L. R. Moyer	Montevideo
Mrs. Jennie Stager	Sauk Rapids
J. S. Parks	Pleasant Mounds
F. J. Cowles	West Concord
F. B. McLeran	Wrenshall
A. H. Reed	Glencoe

STANDING COMMITTEES FOR 1905.

Fruit List.

Prof. S. B. Green	St. Anthony Park
J. P. Andrews	Faribault
Thomas E. Cashman	Owatonna

Seedling Fruits.

Wyman Elliot	Minneapolis
Prof. S. B. Green	St. Anthony Park
Dewain Cook	Jeffers

Ornamental List.

A. W. Hobart	Minneapolis
C. M. Loring	Minneapolis
Le Roy Cady	St. Anthony Park

Nomenclature.

Prof. N. E. Hansen	Brookings, S. D.
Clarence Wedge	Albert Lea
Geo. W. Strand	Taylor's Falls

Legislation.

(Executive Board, ex-officio.)

E. W. Randall	Hamlin
T. A. Hoverstad	Crookston
A. K. Bush	Minneapolis
C. M. Loring	Minneapolis
R. H. L. Jewett	St. Paul

Publication.

Prof. S. B. Green	St. Anthony Park
Wyman Elliot	Minneapolis
A. W. Latham	Minneapolis

ANNUAL MEETING, 1904, MINNESOTA STATE HORTICULTURAL SOCIETY.

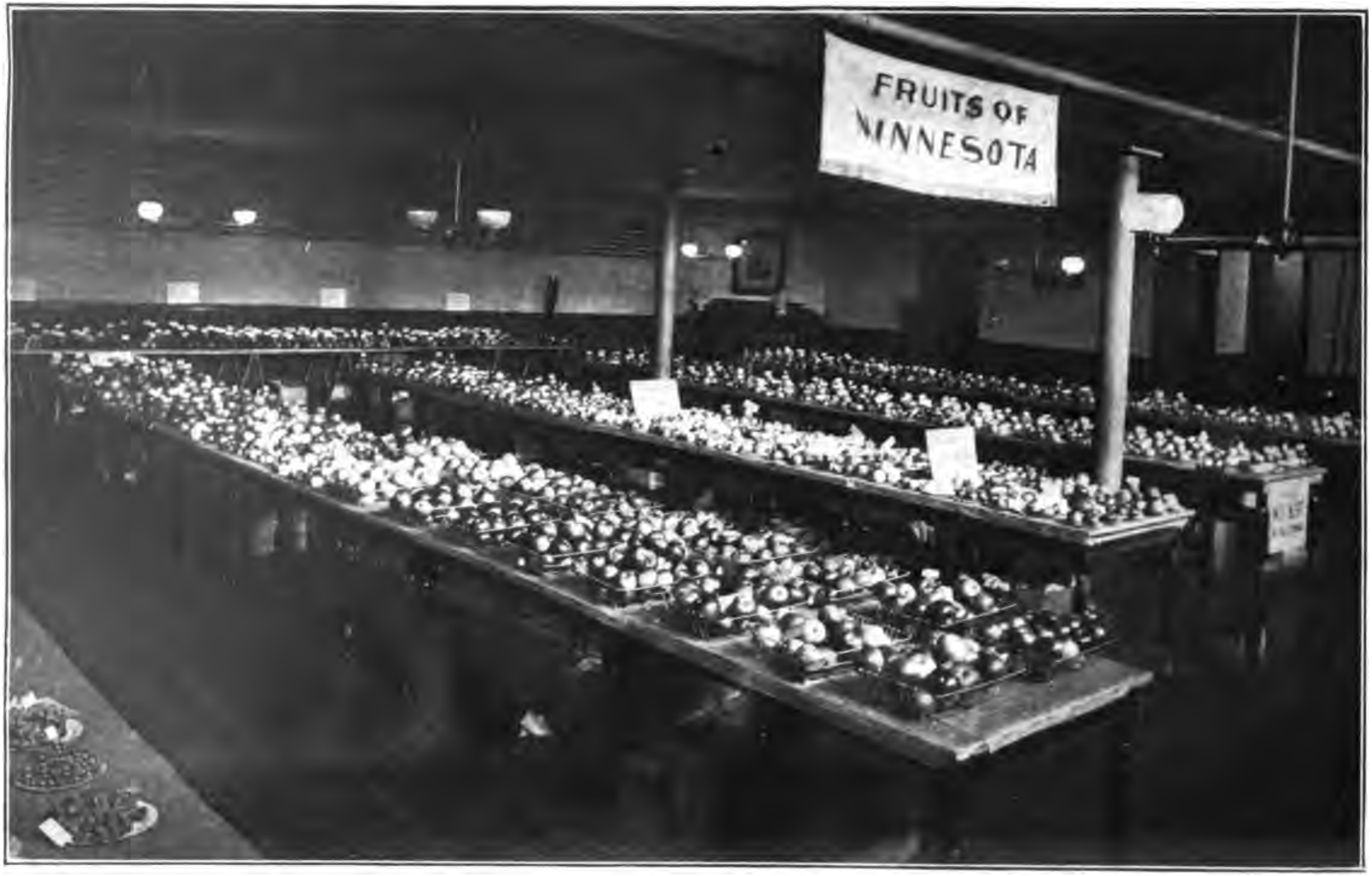
A. W. LATHAM, SECRETARY.

The 38th annual meeting of this society convened on December 6, 1904, in annual session, under almost ideal conditions. The weather was mild and pleasant, with no snow upon the ground to interfere with getting about, and the meeting was held in such pleasant rooms, so specially well adapted to our purpose that they could scarcely have been better if they had been constructed purposely for our use. Nor were there any features of the meeting to interfere with entire harmony in its proceedings.

The program as a whole went smoothly, with scarcely a break, as arranged. The session opened on the morning of the first day with an attendance of approximately 150, including in this number a good sized delegation from the School of Agriculture. These young people have for some years met with us, especially at the first session of our annual meetings, and in smaller numbers at every other session, and their presence is a most welcome addition to the audience. The attendance was well maintained, running from 150 to 200 throughout all the sessions of the meeting, and especially on the last day, and in the afternoon session of the last day, that in many organizations is a time when the attendance drops off, there was a maximum attendance, upwards of 200 participating in what proved to be the most interesting one of the sessions. The plan pursued of providing an especially good program for the first and last sessions of the meeting works well in practice in getting our members out early and holding them till the close of the meeting.

The most important criticism that occurs to the writer as to the general movement of the meeting is that the members are not commendably prompt in being at the meetings when called. As the program of these meetings is always very full and requires the full time arranged to complete the work of each session properly, it is especially important that the members should be in their seats promptly when the meeting opens.

Not quite as many delegates from other states as usual were present this year. Prof. N. E. Hansen was there during the entire meeting, representing the South Dakota Horticultural Society; Prof. C. B. Waldron, representing the North Dakota Horticultural Society, spent half a day with us. Mr. A. J. Philips was the only representative from Wisconsin, the regularly ap-



PARTIAL VIEW OF FRUIT EXHIBITION ROOM. THE TABLES ALONG THE TWO SIDES ARE NOT SHOWN.

pointed delegate, Secretary Frederick Cranefield, being unable to attend. Prof. A. T. Erwin, from the Iowa Agricultural School, represented the Iowa State Society and spent the first two days of the meeting with us. Mr. J. C. Ferris of Hampton, Iowa, was present as delegate from the Northeastern Iowa Society and was there throughout the meeting except the first day. Mr. C. S. Harrison, who is a life member of this society, was present also as the representative of the Nebraska Horticultural Society. All of these gentlemen took an active part in the sessions and added greatly to their interest.

The program as published was very closely adhered to, there being scarcely any absentees. With the exception of the session on Wednesday morning, devoted to the annual reports, the entire program of each session was carried out practically as announced, no topic being carried forward to a subsequent session. A notable exception to this though was the omission of a talk we were to have had from Prof. Green concerning a recent trip to the west and north. He insisted on leaving it out rather than shorten the time allotted to the forestry session. We shall expect to hear from Prof. Green on this subject through our columns.

The Woman's Auxiliary as usual gave us a very rich program, including some features not previously announced. The program of the Forestry Association was given in its entirety without a single omission. A report of the latter association is to be found in this issue of our monthly.

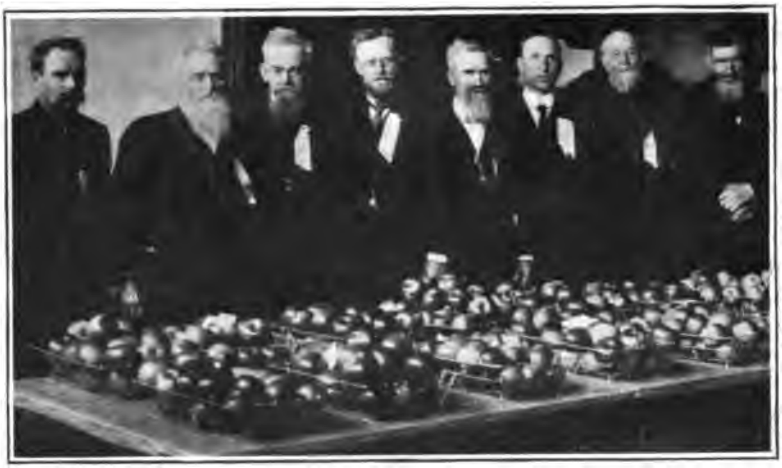
The social reunion of the ladies of the horticultural society, tendered by Mrs. Chas. M. Loring, on account of sickness in her home was held instead at the residence of Mrs. M. M. Barnard, 805 Seventh street S. E. Considering the late date of announcing this there was a good attendance at the reunion and a very pleasant time was had there. This is a good opportunity to emphasize the desirability of a larger attendance of the wives of the members and other ladies at our annual meeting. At most of the sessions there was a liberal showing of ladies present, but a still larger attendance is very much to be desired.

Plenty of time was allowed for discussions in connection with most of the papers presented, and these of course will all appear in the various numbers of the Horticulturist throughout the year.

The election of officers as usual was something to be gotten through with in a hurry and make way for what the members of our society evidently consider of much greater importance, the discussion of some of the thousand horticultural topics continually presented at such gatherings. The executive officers of the society to be balloted upon at this time, including the president, two members of the executive board, and the treasurer, were all re-elected without opposition, and the same may be said of the officers of the Woman's Auxiliary, Miss Emma V. White continuing as president and Mrs. Anna B. Underwood as secretary. There was a complete change in the list of vice-presidents of the horticultural society, made with the purpose of securing report from the various congressional districts of the state from different standpoints than those received the past year, the making of such reports being the special duty of the vice-presidents.

A FEW OF THE OLD MEMBERS.

1. J. A. Howard
2. Wyman Elliot
3. A. J. Philips
4. Prof. N. E. Hanson
5. W. L. Taylor
6. F. J. Cowles
7. S. H. Kenney
8. J. S. Parks



PECKS OF WEALTHY SHOWN AT ANNUAL MEETING.

The exhibit of fruit, made as last year in the basement room of the building occupied, the First Unitarian Church of Minneapolis, was large enough to completely fill the room and consisted of 1,051 plates of fruit and eighteen pecks of apples, to say nothing of a number of pyramids and mounds of apples displayed by individual exhibitors. The exhibit is divided approximately as follows: Single plates, entries 475, private exhibits 245; exhibit of seedling apples 225, of which 125 made up the exhibit from the seedling orchard of T. E. Perkins, of Red Wing. There were shown eleven pecks of Wealthy apples, two pecks of Patten's Greening apples, one peck of Northwestern Greening apples. There were also six collections of apples of ten varieties each. Thirty-six plates of grapes were also on exhibition. This is, I believe, the largest exhibit ever made by the horticultural society and, according to the statement of a member from abroad, the finest exhibit of fruit ever made at such a meeting in his knowledge. It is certainly a showing of which the society may well be proud, and yet how few of the residents of Minneapolis saw this magnificent show, which was well advertised in the papers! Evidently the people generally believe that the horticultural society is well able to run this business without their help. The total amount of premiums awarded is $198.20. Details as to this may be had by consulting the list of awards as published immediately following this report.

The annual banquet as usual was the special feature of the meeting, and those who attended it in speaking of it say it was the "best of all." It certainly was in point of members, as 129 participated, filling the entire hall in the Y. W. C. A. building, where we were entertained. Each one who took part on the program following the supper acquitted himself so admirably that it would be invidious to refer to any particular effort. With the exception of the first number, a violin solo, every part was taken as arranged, and in addition Mr. A. J. Philips made his usual humorous talk after being called upon the floor by Mr. Frank Yahnke; and Mrs. Ruth Fillmore rendered in a very pleasing manner a couple of songs which had not previously been planned for. The program for the banquet is here given in full:

Toastmaster....................................Clarence Wedge
Grace,.....................................Rev. C. S. Harrison

Supper at 6:30 p. m.

PROGRAM.

1. Violin Solo................................J. W. Shuman
2. The Hum-"bug," its Life History in the Minor Key, ...Prof. F. L. Washburn
3. Life a Delusion, from the Standpoint of the Nurseryman................................Thos. E. Cashman
4. The Incompatibility of the Inexorable or Thereabouts................................A. G. Long
5. Recitation.........................Miss Bessie McKean
6. Education in Fruit Culture..................Geo. S. Innis
7. Where I "Fell Down," Told in Strict Confidence... ....Dewain Cook
8. The Boy, the Bulldog, and the Apple Tree, a Fruitful Combination............................Frank Yahnke
9. A Biography in Song................Mrs. Wm. Robertson
10. Accumulating Years Stimulate the Memory—a Glance at the Past.......................Wyman Elliot

As the annual meeting drew to a close, a large number of members spoke for a moment or two, bringing together in a very pleasing way the more important thoughts of the session.

At five o'clock, Mrs. Ruth Fillmore sang for us "Abide With Me," the president made a few closing remarks, and the 38th annual meeting of our society, a most enjoyable occasion, came to a close.

AWARD OF PREMIUMS.

ANNUAL MEETING, 1904, MINNESOTA STATE HORTICULTURAL SOCIETY.

COLLECTION OF APPLES.

Exhibitor.	Premium.	Amount.
J. A. Howard, Hammond	First	6.00
Jewell Nursery Co., Lake City	Second	4.00
W. L. Parker, Farmington	Third	2.00

A. J. PHILIPS, Judge.

APPLES KEPT IN COLD STORAGE.

Varieties.	Exhibitor.	Premium.	Amount.
Christmas	A. B. Lyman, Excelsior	First	.50
Peerless	"	First	.50
University	"	First	.50
Utter	Gust Johnson, Excelsior	First	.50
McMahon	Wm. Oxford, Freeburg	Second	.25
Okabena	"	Second	.25
Utter	"	Second	.25
Peter	P. H. Perry, Excelsior	First	.50
Yellow Transparent	"	First	.50
Longfield	"	Second	.25
October	"	First	.50
Gideon	"	First	.50
Christmas	C. E. Older, Luverne	Second	.25
Malinda	"	Second	.25
Grundy	"	First	.50
Hibernal	"	Second	.25
Brett	P. H. Perry	First	.50
Haas	W. L. Parker, Farmington	Second	.25
Hibernal	"	First	.50
Cross	"	First	.50
Tetofsky	"	First	.50
Rollin's Prolific	"	First	.50
Charlamoff	"	First	.50
Duchess	"	First	.50
Antonovka	"	First	.50
McMahon	"	First	.50
Borovinca	"	First	.50
Kaump	"	First	.50
Judson	"	Second	.25
Anisim	"	First	.50
Gideon	"	Second	.25
Striped Anis	"	First	.50
University	"	Second	.25
Lowland Raspberry	"	First	.50
St. Lawrence	Jewell Nursery Co., Lake City	Second	.25
Northwestern Greening	"	Second	.25
Patten's Greening	"	Second	.25
Wolf River	"	First	.50
Okabena	"	First	.50
Duchess	"	Second	.25
Wealthy	"	Second	.25
Grundy	"	Second	.25
Judson	"	First	.50
Kaump	"	Second	.25
Newell's Winter	J. A. Howard, Hammond	First	.50
Jewell's Winter	"	First	.50
Scott's Winter	"	First	.50
Anisim	"	Second	.25
Ben Davis	"	First	.50
Brett	"	Second	.25
Borsdorf	"	First	.50

Cross	"	Second	.25
Charlamof	"	Second	.25
Golden Russet	"	First	.50
Haas	"	First	.50
Longfield	"	First	.50
Malinda	"	First	.50
Northwestern Greening	"	First	.50
Peter	"	Second	.25
Phoebe	"	First	.50
Peach	"	First	.50
Rollin's Prolific	"	Second	.25
Red Queen	"	First	.50
Repka Malenka	"	First	.50
St. Lawrence	"	First	.50
Striped Anis	"	Second	.25
Tetofsky	"	Second	.25
Wolf River	"	Second	.25
White Pigeon	"	First	.50
Walbridge	"	First	.50
Yellow Sweet	"	First	.50
Peerless	"	Second	.25
Wealthy	"	First	.50
Patten's Greening	W. L. Parker, Farmington	First	.50
Borovinka	J. A. Howard, Hammond	Second	.25

JNO. P. ANDREWS, Judge.

APPLES NOT KEPT IN COLD STORAGE.

Varieties.	Exhibitor.	Premium.	Amount.
Northwestern Greening	J. A. Howard, Hammond	First	.50
Peter	"	First	.50
Rollin's Prolific	"	First	.50
Wolf River	"	First	.50
Walbridge	"	Second	.25
Hibernal	"	Second	.25
Okabena	"	First	.50
Dartt	"	First	.50
Gen. Grant	"	First	.50
Hyslop	"	Second	.25
Lyman's Prolific	"	First	.50
Minnesota	"	First	.50
Orange	"	Second	.25
Virginia	"	Second	.25
Newell's Winter	"	First	.50
Jewell's Winter	"	First	.50
Scott's Winter	"	Second	.25
Meader's Winter	"	First	.50
Ben Davis	"	First	.50
Brett	"	First	.50
Golden Russet	"	First	.50
Grundy	"	First	.50
Haas	"	Second	.25
Judson	"	First	.50
Kaump	"	First	.50
McMahon	"	First	.50
Scott's Winter	W. L. Parker, Farmington	First	.50
Newell's Winter	"	Second	.25
Repka Malenka	"	First	.50
Peter	"	Second	.25
Plumb Cider	"	First	.50
Okabena	"	Second	.25
Meader's Winter	"	Second	.25
Longfield	P. H. Perry, Excelsior	Second	.25
Brett	"	Second	.25
Martha	"	First	.50
Virginia	"	First	.50
Peerless	"	Second	.25
Hyslop	H. H. S. Rowell, Minneapolis	First	.50
Longfield	C. W. Spickerman, Excelsior	First	.50
Malinda	Nils Anderson, Lake City	Second	.25
Utter	Wm. Oxford, Freeburg	Second	.25
Anisim	"	First	.50
Ben Davis	"	Second	.25
Haas	"	First	.50
Gideon	Mrs. Isabella Barton, Excelsior	First	.50
Wolf River	Frank Yahnke, Winona	Second	.25
Faribault	R. H. L. Jewett, Faribault	Second	.25
University	H. H. S Rowell, Minneapolis	Second	.25
Utter	"	First	.50
University	H. W. Shuman, Excelsior	Second	.25
Ostrekoff	"	First	.50
Anisim	"	First	.50
Patten's Greening	"	Second	.25

Walbridge	Nils Anderson, Lake City	First	.50
Duchess	J. O. Weld, Mound	First	.50
Antonovka	D. T. Wheaton, Morris	First	.50
Orange	"	First	.50
Northwestern Greening	Frank Yahnke, Winona	Second	.25
Fameuse	"	Second	.25
Wealthy	A. Brackett, Excelsior	First	.50
Golden Russet	S. A. Alling, Homer	Second	.25
Fameuse	"	First	.50
Faribault	H. H. Pond, Bloomington,	First	.50
Peerless	Preston McCulley, Maple Plain	First	.50
Malinda	"	First	.50
Patten's Greening	"	First	.50
Hibernal	"	First	.50
Wealthy	"	Second	.25
Jewell's Winter	Nils Anderson, Lake City	First	.50
Giant Swaar	J A. Howard, Hammond	First	.50
Yahnke	"	First	.50
Pickett's Prolific	"	First	.50

DEWAIN COOK, Judge.

EARLY WINTER SEEDLING APPLES.

Varieties.	Exhibitor.	Premium.	Amount.
Lord's L.	C. W. Merritt, Winona	70 per cent.	$3.00
Lord's Seedling	"	65 per cent.	2.80
LXXIII	D. F. Akin, Farmington	60 per cent.	2.60
XXII	"	70 per cent.	3.00
No. 1	W. L. Parker, Farmington	45 per cent.	2.00
102	A. B. Lyman, Excelsior	60 per cent.	2.60
Evelyn	"	95 per cent.	4.10
Sweet Seedling	S. A. Alling, Homer	75 per cent.	3.25
No. 1	H. H. Pond	70 per cent.	3.00
Eureka	A. J. Philips, West Salem, Wis.	75 per cent.	3.65
Maas	"	70 per cent.	3.00
J	V. A. Neil, Minneapolis	45 per cent.	2.00
	J. A. Howard	75 per cent.	3.25
20A	T. E. Perkins	50 per cent.	2.15

SAM'L B. GREEN, Judge.

LATE WINTER SEEDLING APPLES.

Varieties.	Exhibitor.		
No. 1	J. A. Howard	70 per cent.	3.55
No. 2	"	60 per cent.	3.05
72	T. E. Perkins	80 per cent.	4.00
111	"	50 per cent.	2.55
1A	"	50 per cent.	2.55
Seedling	Frank Yahnke, Winona	40 per cent.	2.05
Prosser's Winter	L. W. Prosser, Le Roy	60 per cent.	3.05
Schutz No. 1	"	55 per cent.	2.80
J.	J. R. Cummins, Washburn	60 per cent.	3.05
Appleton	A. J. Philips, West Salem, Wis.	70 per cent.	3.55
LXII	D. F. Akin, Farmington	40 per cent.	2.05
XXV	"	50 per cent.	2.55
XLVI	"	45 per cent.	2.30
Seedling Russet	"	70 per cent.	3.55
Burt	A. B. Lyman, Excelsior	50 per cent.	2.55
Perfect	"	70 per cent.	3.55
1	H. H. Pond, Bloomington	40 per cent.	2.05
Moran	A. J. Philips, West Salem, Wis.	50 per cent.	2.55
Shook	"	40 per cent.	2.05
Zettle	"	65 per cent.	3.30
Dwelle	Nils Anderson, Lake City	65 per cent.	3.30

SAM'L B. GREEN, Judge.

PECKS OF WEALTHY APPLES.

Exhibitor.	Premium.	Amount.
Preston McCulley, Maple Plain	First	$4.00
J. A. Howard, Hammond	Second	3.00
H. W. Shuman, Excelsior	Third	2.00

CHARLES F. GARDNER, Judge.

COLLECTIONS OF GRAPES.

Gust Johnson, Excelsior,	First	$5.00
H. L. Crane, Excelsior	Second	4.00

A. W. LATHAM, Judge.

FLOWERS.

Article and Exhibitor.	Amount.
Table Bouquet, E. Nagel & Co., Minneapolis	$2.00
Collection of Plants, E. Nagel & Co., Minneapolis	5.00

A. G. LONG, Judge.

SPECIAL PREMIUMS.

Best Early Winter Seedling Apple.—Fifty Wealthy trees, four to six feet, offered by the Jewell Nursery Co., awarded to A. B. Lyman, Excelsior.

Best Late Winter Seedling Apple.—Fifty Wealthy trees, four to six feet, offered by Jewell Nursery Co., awarded to T. E. Perkins, Red Wing.

SAMUEL B. GREEN, Judge.

Peck of Patten's Greening Apples.—J. A. Howard, Hammond, first. Twelve three-year-old apple trees, offered by W. H. Eddy, Howard Lake.

H. L. Crane, Excelsior, second. Seventy-five gladiolus bulbs, offered by W. E. Fryer, Mantorville.

Peck of Northwestern Greening Apples.—D. F. Akin, Farmington. First, $6.00 in nursery stock, offered by Mitchell Nursery Co., Owatonna.

CHAS. F. GARDNER, Judge.

List of varieties entered at the 1904 annual meeting as single plates, and the number of plates of each:

Newell's Winter	8	Rollin's Prolific	3	Blushed Calville	1
Jewell's Winter	2	Red Queen	1	Lowland Raspberry	1
Scott's Winter	4	Repka	2	Antonovka	2
Anisim	9	St. Lawrence	2	Borovinca	2
Ben Davis	4	Striped Anis	8	October	1
Brett	5	Tetofsky	3	Giant Swaar	2
Borsdorff	1	Utter	6	Plumb Cider	1
Cross	2	University	5	Ostrekof	1
Christmas	8	Wolf River	12	Yahnke	1
Charlamoff	8	White Pigeon	1	Fameuse	4
Golden Russet	5	Walbridge	4	CRAB APPLES.	
Grundy	4	Yellow Sweet	1	Meader's Winter	2
Haas	5	Yellow Transparent	1	Dartt	1
Judson	4	Duchess	4	Gen. Grant	1
Kaump	4	Hibernal	9	Hyslop	2
Longfield	9	Okabena	9	Lyman's Prolific	2
Malinda	7	Patten's Greening	14	Minnesota	1
McMahon	5	Peerless	5	Orange	2
N. W. Greening	11	Wealthy	20	Faribault	2
Peter	8	Gideon	5	Martha	1
Phoebe	2	Zuzoff	1	Virginia	2
Peach	1				

PRESIDENT'S ANNUAL ADDRESS, 1904.

CLARENCE WEDGE, PRES.

Fellow Members, and Horticulturists of Minnesota: It is my happy privilege again to greet you at the beginning of this, another horticultural year. How the years slip by, and with what endless variety of seasons, and new and interesting developments! We call the seasons by the old names, but they are more truly new seasons, each having peculiar beauties and interests, each one of a mighty procession that is bearing us along with our small budget of hopes and cares, opportunities and responsibilities. But how gently they deal with us who work and wait on nature! As I look over the countenances of those I first met here some fourteen years ago not one seems a year older, and we are sure that not an iota of interest in life has been lost by even the oldest. Horticulture here in the north surely proves a fountain of youth to those who abide with her. Some have fallen by the way whom we may have called old in years, but to the last they have kept that earnestness and enthusiasm that is the most certain mark of youth.

I have addressed with you the "horticulturists of Minnesota," realizing that although our society now numbers eighteen hundred members, the greater number of the brotherhood are yet outside our pale, although under our care and auspices and expecting of us a guidance and direction that will promote their welfare; and in addressing the horticulturists of our state it would seem that we ought to be addressing every one living within its bounds, for every one who has one window may have a plant, so that even those 'Cliff dwellers" who have doomed themselves to office buildings and flats may still have a window garden and become interested with us in the processes of life.

My address to you a year ago was largely directed to the work of the society, but at this time I wish to call your attention to some of the more needy or more hopeful lines of effort that seem open to us in the several departments of horticulture at the present time.

The Apple: With all due allowance for the need of better keeping apples adapted to our climate, we feel that there can be no question that the greater public want is a hardier and better class of roots upon which as a safe foundation we may grow our orchard trees. Our many open winters, with bare ground and deep freezing, require that the roots of our trees shall be of a better character than such as can be grown from the French apple or the average cider mill product of the American orchard. Prof. Hansen, of South Dakota, has done a great deal for us by starting the present agitation. The northern nurserymen are interesting themselves in a very energetic way to secure the best stocks at present available, and the prospect of steady improvement is very encouraging. But we must not allow the matter to rest until we have as safe and satisfactory roots for our apple as we already have for the plum—the question of the whole or piece root graft is mere child's prattle compared with it. We believe that such a root may be found and that the search and active experiments should be continued until it is brought to light.

The Plum: The most notable improvement that is going on with this valuable fruit is in combining the excellences of the different races that are under cultivation, the native, the Japan and the European varieties; and from what has been already developed in this way, and the products shown at our fairs, we feel sure that we are at the beginning of a new era in plum growing, with larger, firmer fruit and a greatly enlarged market. Our present standard list is very defective, and we should welcome the new candidates as fast as they are able to prove themselves worthy, for nothing seems more certain than that the old list is about to be displaced with something much better and more profitable.

The Cherry: Much discouragement is felt with this fruit at this time on account of a large loss of trees during the past winter. We think, however, that this loss was due rather to the bad condition of the foliage during the growing period of the preceding summer than to any special severity of the winter. With proper attention to spraying, the foliage might have been kept healthy. We think, therefore, that we should continue to experiment with this fruit, and that considering the good prices which it uniformly brings in our local markets it may be profitably cultivated in favorable locations in southern Minnesota.

The Vineyard: Here on account of past discouragement and the low price of the product, set by more favored sections, we are making little progress; indeed, there is decidedly less general interest in this branch of horticulture than there was twenty years ago. As with the apple, there is a great need of more hardy roots and, in addition, varieties of a somewhat earlier season. The vineyardists of Europe solved their root troubles by using our native eastern grape as a stock. Why might we not accomplish our ends by using the hardy root of our native western vine? Perhaps the very vigorous semi-western variety sent out by our central station, the Beta, may prove sufficient for the purpose. With us it has stood perfectly while the roots of nearly all varieties near it were winter-killed. Our clear air and warm sunshine are certainly very favorable to the cultivation of this ancient fruit, and with some little advance in hardiness and earliness it would seem reasonable to hope for a general revival of interest in the vineyard.

Small Fruits: This branch of horticulture is so thoroughly and ably cared for by those specially devoted to it that there seems to be little of general value to be mentioned. It may, however, be well to caution you that it is not reasonable to expect a continuation of the favorable moisture of the past three seasons. "In time of peace prepare for war." Drought is the great enemy of the berry grower, and, remembering the past, he should be prepared to meet this enemy when he appears more effectively than ever before. Cultivation, mulch and even irrigation must be studied and applied in due season, or we shall again see valuable plants and bright prospects wither and die at the very harvest time. Here, as with the plum, new varieties marking a steady progress are being rapidly developed, and we must discover and make use of them or be left behind in the march of progress.

Evergreens: The great hope for improvement in this class of trees lies with the nurseryman in the selection of his seed from that type of each species that is best adapted to our climate. We are just beginning to consider this matter, but it is one that lies at the very foundation of successful tree planting, as much as a proper selection of seed does at the foundation of successful agriculture. Permit me to give an instance from our own experience that is typical of nearly every species that we handle. At one time we had four types of the white spruce (Picea alba) growing at our place. First, the hardiest, most densely foliated and most beautiful of all, that from the Black Hills of South Dakota; second, a more growthy and very desirable type from northern Minnesota; third, a passably fair but not really satisfactory kind, probably from the eastern states; and, fourth, a wretchedly feeble and worthless sort from European seed. These were all true white spruce, and each in its proper habit would doubtless have been a credit to its kind, but with us in southern Minnesota only two of them were worthy of the ground they occupied. This difference within the species, we believe, holds largely true with nearly all the trees we plant, and the longer we put off its careful consideration the longer shall we fail to realize any certain success.

Forestry: We only mention this important branch of our art, which is so well cared for by an association of its own, in order to give expression to the satisfaction and thankfulness we feel at the wonderful progress that is being made in this formerly neglected subject. Those of us who can remember the state of things less than twenty years ago will almost wish that some of the departed champions of the forest could have lived to see this their day of triumph.

Ornamental Planting: We think that the idea of "Art for art's sake" will not commend itself to the hard working, practical, bread winning class that I am addressing. But I am certain that any art for beauty's sake will be sure of your sympathizing interest. Beauty is the seal, the trade mark, if you please, of perfection. It is and ever will be one of the proofs of a task well done. We must not and can not be satisfied without it. Nature when she has full sway is superb, unapproachable. I well remember the exclamation of my father in one of our rides together in the early days of our state. As we reached the top of one of those swells in the prairie that gave a wide, midsummer view of the fields, lakes and rivers as God made them, "Oh," said he, "they will never be so beautiful again." And they have not been, nor are they now. The hand of man has so far been careless and awkward. But we have only begun our work; when it is completed we may hope that the earth will again show forth a harmony and beauty like unto that of which we robbed it. There is much useful agitation these days for good roads, and it is probably necessary, in some sense, that they be made first good and then beautiful. As they stand today, they are very far from being either. The attempts that have so far been made in planting our highways have been commonly ill advised and frequently hideous. As a society we need to put more thought on this subject and take a larger initiative in suggesting plans that shall at once be practical and truly decorative. While the city residence, park and cemetery are getting a fair share of our attention, I fear that we are also in a measure neglecting to provide plans and suggestions for planting the farm and village lot. We especially need to educate our people away from the idea that these efforts in home adornment should be opposed to nature, or tending to express artificial ideals only, and show them that the truest beauty is that which they may copy from the native copses and openings about them.

Having thus rambled over the work field of our society with you, I must now call you back to the duties and pleasures of our present meeting. Let us be truly fraternal in our intercourse. Here and during these days we are each to be the humble, courteous servant of the other. For the stranger and the new member we have an especial welcome. You are the very people that we have been seeking! We wish your questions, your fresh thoughts and your suggestions. We hope to make you so contented here that you will choose to stay with us. The older members need no spoken welcome, for we are indeed brethren; eye speaks to eye, and heart to heart, and "There's no friend like the old friend."

So then, in the midst of these most cheerful surroundings, with fruits and flowers and music to inspire us, let us be about our work.

REPORT OF COMMITTEE ON PRESIDENT'S ANNUAL ADDRESS.

E. A. SMITH, CHAIRMAN, LAKE CITY.

The address of President Wedge bristles with good points. The greatest compliment we could pay him would be to repeat it entire. We briefly review and report as follows:

Every one owes a duty to himself. He should help make the home more beautiful by planting a shrub or fruit tree or securing a plant for the home.

The Apple: It is essential to secure a more hardy class of roots. The question of piece root or whole root grafts is "merely child's prattle in comparison" with the more important question of a hardy root.

The Plum: We are at the commencement of a new era in the cultivation of this important fruit. A larger, firmer fruit means a larger and more profitable market. Great possibilities exist for the future of this fruit. Will it not be well for the horticultural society to encourage new fruit creations in plums by offering a prize of $100.00 for a plum meeting certain standards of requirement?

The Cherry: A cherry for the north is one of our great needs; a cherry that is hardy, productive and of good quality is what is needed. Who will be the fortunate one to produce it?

The Grape also needs a more hardy root for the north. The adoption of the wild grape or Beta as stock for other well known varieties is worthy of further investigation.

The Small Fruits should also mark a steady progression along the line of quality, productiveness and hardiness. Continued experimenting is advocated.

Evergreens: The selection of hardy seed of the best types for our various localities is necessary.

Forestry: Wonderful progress is being made in this formerly neglected subject. Ornamental planting is winning and making its way. City, town, park and cemetery are receiving their fair share of attention.

The future of horticulture in the northwest looks bright and hopeful. The Minnesota State Horticultural Society is doing a splendid and important work; it is making horticultural history. It is for each member to assist in making the society a place where fraternal greetings find welcome, where exchange of thought proves helpful, and where new inspiration urges us to better and higher planes of work.

ANNUAL REPORT, EXECUTIVE BOARD, 1904.

WYMAN ELLIOT, CHAIRMAN.

The executive board have been in session but twice during the year. The management of our horticultural affairs is so admirably conducted by our secretary that they require but little attention from the executive board. All questions of great importance are referred to the two resident members, Green and Elliot, and if requiring the sanction of all the members the matter under consideration is decided by means of correspondence or long distance telephone, thus saving time and expense in calling the members together during the periods intervening between our semi-annual meetings. The executive board usually finds no necessity for a meeting of the full board oftener than two or three times each year, and, to avoid expense, each member is notified by the secretary to meet at his office the evening before the opening of our winter meeting and again on the day of adjournment, thereby relieving a full quorum of the board from further duty till the summer meeting of the society in June.

Mr. J. A. Vye, the bookkeeper of the central experiment station, has examined the books of the secretary from June 26th, 1903, to June 23rd, 1904, and found them correct. The executive committee have also examined the books of the secretary and treasurer for the past year, checked up the bills and vouchers and found them correct.

We have at the end of 1904 eighteen hundred members, and with the present method of distributing our reports have not enough left to make the proper exchanges with other horticultural societies and experiment stations; therefore the board decided to apply to our next legislature for an increased appropriation that we may print two thousand copies more than are printed at the present time. With this increased number, we should have enough to supply our increasing membership and lay aside a sufficient number for future life members.

The executive board desires at this time to thank the members of our society who have so freely contributed fruits from their orchards and gardens for the Minnesota Fruit Exhibit at the St. Louis Louisiana Exposition, and those who have had charge of their installation and management, as well as our press for the many expressions of praise and commendation so generously published.

SECRETARY'S ANNUAL REPORT, 1904.

A. W. LATHAM, SEC'Y.

This word which I bring to the members of this society at its 38th annual meeting marks the close of my fourteenth year of service as your secretary. The opportunities that have come to us during this period and the resulting developments are as well known to you as to myself, and I will not here dwell upon them. Incidentally the secretary is necessarily more or less in touch with all the horticultural interests of the state, and I might in this report approximately sum up the general status of matters connected with our art in a way to furnish a certain amount of valuable information, but as these facts are brought out very largely in connection with the reports of the superintendents of trial stations and the vice-presidents of the society, I will not burden you with a dissertation of that kind at this time, neither will I give you any special word of cheer or encouragement as to the future work, which has been done by our president in his annual address. As heretofore the report is confined very closely to practical matters connected with the working of the office that it has been your pleasure I should fill during this long period.

A special index of the strength of the society in the accomplishment of its work is necessarily the number of its membership, and to this I first call your attention. With the exception of one year since I became your secretary there has been an increase of membership over the year preceding. This year the increase has been more marked than usual. I reported to the last annual meeting an aggregate membership roll of 1,430. It is now my pleasure to report an increase of this of 370 members, making the total roll for the year 1904 to date 1,800. Of this increase 354 are for annual members. There have been added to the life roll this year fifteen new names, and three have been removed by death. The additions are as follows: Peter Siverts, Canby; G. A. Anderson, Renville; Paul Burtzlaff, Stillwater; M. A. Eliason, Artichoke Lake; Chas. Hawkinson, Excelsior; Thomas Lowry, Minneapolis; F. F. Marshall, Crow River; Willis P. Mann, Dodge Center; Ole S. Quammen, Glencoe; C. J. Manner, Anamoose, N. D.: Victor A. Neil, Minneapolis; Otto Kankel, Fertile; C. S. Harrison, York, Neb.; Alex. Alin, Fullerton, N. D., and L. B. Arnold, St. Paul. The deaths are those of Mr. L. M. Ford, who died at San Diego, Cal.; Jacob Manning, at Reading, Mass.; and Wm. S. Dedon, who passed away at his home in Taylor's Falls Nov. 28, 1904. These changes in the life roll increase the number of life members as noted last year by twelve members.

Of this increase in membership 130 are to be charged to the North Dakota Horticultural Society, which came in as an auxiliary society this year, but we also dropped from the roll the South Dakota society, which heretofore had occupied this relative position, the number of their roll, however, being much less. About 220 members came to us from the Farmers' Institute, most of them as a result of the work of Mr. Frank Yahnke. This number, however, is not in excess of that of previous years. Aside from these special sources there is apparent a certain movement in growth taking place through the cumulative interest taken by the members of the society, which is bringing about a steady increase in our numbers without any special work on the part of your secretary other than picking up loose ends and seeing that each member has the attention to which he is entitled.

The condition of the finances of the society is equally satisfactory, there being a considerable sum more in the hands of the treasurer at this time than a year ago, notwithstanding some special expenses which the society has incurred on account of increased assistance required in the office, caused by the relation of the secretary to the World's Fair and other matters connected with the growth of the association. It has been found necessary to employ a clerk and stenographer in the office all the time during the year, which has insured the office being open during ordinary office hours.

The increase in membership has resulted in a shortage in the reports and magazines printed for the society under the late law providing for an increase. There are now being printed 4,000 copies of our report, 1,900 of which were sent out as magazines and 2,100 bound in cloth, under the title of "Trees, Fruits and Flowers of Minnesota." As each member receives, besides the magazine, a copy of the annual report of the year before, under an implied pledge to distribute the magazines where they will be appreciated, and as some two or three hundred volumes are required for exchanges and to those whom the law provides shall be furnished with them, it will be seen that with the present membership there are not enough reports to meet the demand; and to preserve any for future life members, it has been necessary this year to cut off the exchanges, which means that reports have not been sent to the horticultural societies throughout the country as heretofore. If the society is to grow in the next two years as in the past and the same method of distribution continues—and any change from this seems to the writer of doubtful expediency—it will be necessary to ask the legislature for an increased printing appropriation. For the other expenses of the society, the present income seems to be sufficient, unless it is desired to occupy better and more expensive offices than we now do. An additional office just across the hall from the old one at present occupied has been rented this year. It is used for storage purposes and as a private office, and its occupation makes it possible to get along in the old location, with which our members are now for so many years familiar.

There has been added to the office equipment this year an excellent safe, which insures us against loss of the society books and records, and to this extent is a certain amount of relief to the officers of the society.

We have, as heretofore, continued to reach the public through the Farmers' Institute. Mr. Frank Yahnke has during the past institute campaign been with what is called the one day corps as a representative of horticulture, and his work has received special commendation from Mr. Gregg and general notice from others who have known about what the institutes are doing. We have felt a just pride in Mr. Yahnke's work in this position. With the main corps, notwithstanding our solicitude in this respect, there has been no horticultural lecturer except a few days that Mr. A. J. Philips was with it; but we have the promise of Superintendent Gregg that this defect in the make-up of the corps will be rectified this year and that some one satisfactory to the officers of the society will be put in the field with the corps in January. We understand that Mr. Yahnke will continue in his old position.

Aside from the North Dakota society referred to above there have been two other new auxiliary societies added to our list this year, one organized by Capt. A. H. Reed, at Glencoe, entitled the McLeod County Horticultural Society, consisting of nineteen members; and the other organized by T. A. Hoverstad, at Crookston, entitled the Red River Valley Horticultural Society. Mr. Wyman Elliot and myself upon invitation assisted in the organization of this latter society. The meeting was well attended and resulted in securing twenty-four members. Prof. Green and myself visited Glencoe also upon invitation of Capt. Reed and attended the meeting of the society there in September. I may say that a number of our members, Mr. Elliot, Mr.

A. K. Bush,. Prof. Wm. Robertson, Mr. Philips, of Wisconsin, and myself were present at the organization of the North Dakota Society in January last. This was a very enthusiastic meeting and nearly all the 134 members were taken at that time.

Something should be said of the special work of the secretary in connection with the state fair and also the World's Fair. As superintendent of the horticultural department of the state fair, it is my pleasure to be able to report a satisfactory exhibit, although the season was very late and the fair was held unusually early, much of the fruit displayed being quite unripe and undersized; but the general appearance of the hall was satisfactory, I believe, and those who participated as exhibitors were well repaid for their work. A number of the usual exhibitors were not in attendance, largely on account of the unripe condition of fruit. It is much to be desired that more of our members should take part in this feature of the work of the society. Two or three days spent in horticultural hall at the state fair will be found very enjoyable, and a share in the premiums is likely to pay the expenses connected with such a visit.

The superintendency of the Minnesota fruit exhibit at the World's Fair came to the secretary in part on account of his connection with the society as its secretary, and was accepted in part to accommodate Ex-Pres. J. M. Underwood, who, as you know, is a member of the Minnesota World's Fair Commission of the state, and with whom it is always a pleasure to work; and in part because I thought I should in this way be able to increase my value to the society as its working officer. A large number of members of the society assisted willingly in the making of this exhibit. While the results were not always what we should have liked, yet I feel that those who took part have done their best under the circumstances and that the society has been in a way benefited as a result. My report as superintendent of the World's Fair being upon the program later, I will not speak further about it at this time.

There are two funds in the hands of the society, indeed I might say three funds, that are yet unexpended. The oldest of these funds is the Gideon Memorial Fund of which $344.00 in all has been collected and this amount less a certain sum paid out for expenses in connection therewith is drawing interest in the Hennepin County Savings Bank. There is $40.00 still uncollected, which we believe to be good, making a total of $384.00. Some plan will undoubtedly be devised soon for bringing this matter to a conclusion and placing the fund where the original purpose for which it was collected will be carried out.

The second fund is an amount of $110.00 derived from the sale of tickets at the society banquet last year. Mr. E. A. Webb, of "The Farmer," paid the expense of this banquet, $110.00, which amount is to be used in providing the horticultural classroom at the State Experiment Station with suitable portraits, etc., to accompany the Harris Memorial Tablet, now in place in that building. Prof. Green, who has charge of this work, reports progress, but this fund is still in the hands of the secretary.

The third fund, though it has not been definitely set aside for this purpose, is the $1,000.00 which the society is offering as a premium for a certain seedling apple which we hope sometime will have a successful claimant. This money is on hand in the savings bank and drawing interest, and this fact should be a stimulant to those who are interested either in securing the premium or in the work of the society.

This report might be extended indefinitely if we were to dwell upon the possibilities and probabilities of the future work of the society. This work will undoubtedly go on along very much the same lines as in the past with an assurance of steady progress in the increasing of facilities for work and the enlarging of the field of usefulness. With a membership of such strength and displaying such earnestness, its continued successful development is assured. The harmony with which the work of the society is done and the united effort of so strong a membership is working out and must continue to work out great good to the cause of horticulture in our state and especially in the development of a local pomology, towards which the principal efforts at present are being made.

FINANCIAL STATEMENT.

Receipts of secretary's office:

Advertisements	$167.15
Life membership fees	154.00
Annual fees, 1903	19.00
Annual fees, 1904	1,466.00
Annual fees, 1905	215.00
E. A. Webb fund	100.00
West. Pass. Association	11.00
Minn. World's Fair Com.	123.00
Books sold	22.46
Sundries	36.65
	$2,314.26

Expenditures of secretary's office:

Postage	$407.01
Express	30.09
Office supplies	90.05
Telephone	39.65
Gas	2.22
Assistance in office	282.85
Library	35.64
Premium books	201.48
Premium plants	34.37
Rent of office	232.80
Reporting annual meeting, 1903	95.92
Expenses annual meeting, 1903	274.51
Expenses summer meeting, 1904	12.45
Expenses annual meeting, 1904	18.63
Expenses executive board	13.83
Expenses delegates	43.63
Funeral flowers	4.50
Insurance	5.50
Safe	55.00
Discounts on memberships	252.85
Assistant librarian	10.00
Expenses seedling committee	20.30
Sundries	35.59
Balance on hand	115.39
	$2,314.26

On deposit in Hennepin County Savings Bank Dec. 1, 1903	$1,223.00
Interest on deposit to date	37.09
	$1,260.09
Balance in society's treasury Dec. 5, 1904	$1,194.37
Balance in secretary's office	115.39
Total society funds on hand	$2,569.85
Gideon memorial fund on deposit in Hennepin County Savings Bank Dec. 1, 1903	$233.73
Interest on same to date	6.99
	$240.72

TREASURER'S ANNUAL REPORT FOR 1904.

A. B. LYMAN, TREASURER.

1903. Receipts.

Dec. 1. To balance from 1903	$655.03
Dec. 1. A. W. Latham, receipts secretary's office 6, 24, '03 to 11, 30, '03	546.28
1904.	
March 16. State treasurer, semi-annual allowance	1,000.00
June 24. A. W. Latham, receipts secretary's office from 12, 1, '03 to 6, 24, '04	1,624.67
Sept. 23. State treasurer's semi-annual allowance	1,000.00
Total	$4,825.98

Disbursements.

Dec. 1. Order No. 119, A. W. Latham, expenses secretary's office 6, 24, '03 to 11, 30, '03	$546.37
Dec. 1. Order No. 120, Wyman Elliot, expenses as delegate to American Pom. Society	56.00
Dec. 1. Order No. 121, A. B. Lyman, treas. sal. 1903.	25.00
Dec. 1. Order No. 122, C. Wedge, pres. salary 1903	25.00
Dec. 1. Order No. 123, Prof. S. B. Green, expense seedling com.	15.27
March 1. Order No. 124, A. W. Latham, secretary's salary 1st quar. 1904	250.00
June 1. Order No. 125, A. W. Latham, secretary's salary 2nd quar. 1904	250.00
June 24. Order No. 126, A. W. Latham, exp. secretary's office from 12, 1, '03 to 6, 23, '04	1,624.67
Sept. 1. A. W. Latham, secretary's salary 3d quar. '04.	250.00
Dec. 1. Order No. 129, A. B. Lyman, treas., premium's winter meeting, 1903	185.80
Dec. 1. Order No. 130, A. B. Lyman, treas., premium's summer meeting, 1904	153.50
Dec. 1. Order No. 128, A. W. Latham, secretary's salary 4th quar. '04	250.00
Total disbursements	3,631.61
Balance	1,194.37
	$4,825.98

ANNUAL MEETING MINNESOTA FORESTRY ASSOCIATION, 1904.

WM. T. COX, SEC'Y, ST. ANTHONY PARK.

The 28th annual meeting of the Minnesota Forestry Association, in joint session with the horticultural society, was held in the audience room of the First Unitarian Church, Minneapolis, Thursday, Dec. 8th.

President Loring in his address reviewed the progress of the association, expressed gratification at what had been accomplished, and, while urging stronger effort on the part of all who are interested in the welfare of our forests and the multitudinous industries which they foster, spoke hopefully of the future of forestry in this state.

The secretary's report embodied a brief account of the work of the association for the past year and called attention to the rapid growth of the forestry movement elsewhere, not only in other states of the union but also in all civilized countries and their colonies.

Attention was also called to the fact that in Minnesota we have four agencies, all useful in the cause of forestry. They are the Forestry Association, the Forestry Reserve Board, the Forest Fire Warden system and the Forestry Course in the university. These, though all working in harmony, have each a separate field of usefulness.

Gen. C. C. Andrews, State Forest Fire Warden, in an able address, clearly pointed out "Minnesota's Needs in Forestry." He is in a position to know some of these needs, for upon him as chief warden falls the duty of organizing and directing the fire warden force which against tremendous odds has accomplished much in the way of fire protection in the great forest areas of the state.

Mrs. Lydia Phillips Williams brought greetings from the National Federation of Women's Clubs, which, as she put it, "stands as an army of active women, 800,000 strong, ready to march to the assistance of the overworked forestry regulars."

She spoke very appropriately on the subject of "Forestry as Related to the Farm."

"Forestry and Game Protection" was the subject of an instructive paper by our well known state game warden, Sam'l F. Fullerton.

"The White Pine Weevil," an enemy of the lumberman, and therefore an enemy of the forester, was described and discussed by Prof. F. L. Washburn, state entomologist, who exhibited a large model of the insect and charts showing the character of its destructive work.

Mr. S. B. Detwiler, of the U. S. Bureau of Forestry, read a paper upon the subject of "Federal Aid for Tree Planters," in which he made clear the purpose of the Government in offering assistance to private efforts in forestry and the manner in which the aid is given.

"Suitable Trees for our Prairies and Roadsides," a paper presented by Harold Cuzner, of the State Experiment Station, contained much of interest to tree planters in the northwest.

The following resolutions were presented and adopted unanimously:

Whereas, Minnesota has the oldest forestry association in the country, great natural forest advantages and should not fall behind any of her sister states in the forestry movement; therefore,

Resolved, By the Minnesota State Forestry Association, at its meeting at Minneapolis, December 8, 1904, that we confidently rely on the friendly and public spirited interest of the legislature in measures for the advancement of forestry. That we hereby respectfully recommend that the legislature increase the appropriation for the prevention of forest fires to the end that the system may prove effective in case of a general drouth. Also, that reasonable appropriation be made to enable the State Forestry Board to plant the Pillsbury Reserve, in Cass County, to properly manage the 20,000 acres of forestry land in St. Louis County, granted to the state by Congress, and to begin the work under the law enacted by the last legislature for purchasing and reforesting waste lands.

The following resolutions were also presented and passed:

Whereas, It is desirable that this association be placed more closely in touch with the people of the state, so that it may become a more useful agency for the dissemination of information upon the subject of forestry and,

Whereas, A small fund should be accumulated to defray the expenses of publications which are in need of being issued and,

Whereas, Co-operation between this organization and the State Horticultural Society should be helpful to both societies, now therefore be it

Resolved, That the constitution be amended in the following particulars:

1st, that the secretary of the association be chosen by the executive committee instead of elected by the association as a whole.

2nd, that the membership fee be changed so that the fee for annual membership shall be one dollar, and for life membership ten dollars.

3rd, that the association become an auxiliary association to the Minnesota State Horticultural Society.

In the business meeting which followed the regular session the following officers were elected for the ensuing year:

President—C. M. Loring, Minneapolis.

Vice-President—S. M. Owen, Minneapolis.

Executive Committee—Wyman Elliot, Minneapolis; Prof. Sam'l B. Green, St. Anthony Park; O. C. Gregg, Lynd; A. W. Latham, Minneapolis.

ANNUAL ADDRESS, PRESIDENT MINNESOTA FORESTRY ASSOCIATION, 1904.

C. M. LORING, PRES.

Gentlemen of the State Forestry Association:

It is with sincere regret that I cannot report greater progress in our work for the past year, and yet I believe some has been made and some good accomplished through the reports of our annual meetings which were published in the Minnesota Horticulturist. The evidence of this is seen in the interest which has been aroused throughout the state in the associations for benefiting the homes in the cities and villages, and in the formation of Farmers' Clubs. Streets have been planted with shade trees. homes beautified with trees and shrubs, and farm buildings surrounded with groves.

In some sections of the state there has been a wonderful transformation; prairies once dotted with buildings standing exposed to the sun and wind now have masses of foliage screening the buildings, which seem like beautiful islands in an emerald sea, and homes which once seemed so desolate and forbidding to the passing traveler now have an air of comfort which can only be obtained through the planting of trees and shrubs, that cool the air, protect them from the rays of the summer sun and set them in a frame of green which makes an attractive feature in the landscape.

Through the lack of funds, it has been impossible to provide the literature which should be circulated throughout the state to aid those who are striving for better conditions but do not receive the information they desire to make their work successful. It is to be hoped that at the coming session of the legislature it may be made to realize that the work of the State Forestry Association is of great importance for the prosperity of the state, and that it is of an entirely different nature from that of the State Forestry Board, that the one does not in the least conflict with the other, and that it will make a small appropriation to enable us to carry on the work which is of so much importance to the farming interests.

All over our country there has been an awakening to the necessity of educating the people in forestry, both in its relation to the farm and to commerce. One city, Los Angeles, Cal., recently decided to plant a forest on a 3,000 acre tract that was presented it some few years ago for a public park. This forest park will be enjoyed much more than the barren land which has laid for many years unimproved for want of means to pay the cost of landscape work and water.

Let us in Minnesota lead in forestry, as we do in so many branches of agriculture and horticulture, and in a few years the state will become as noted for its beauty as it now is for its industries!

LIST OF FRUITS FOR MINNESOTA PLANTING.

Adopted by the Minnesota State Horticultural Society Dec. 8, 1904, for the Guidance of Planters in Minnesota.

APPLES.

Of the first degree of hardiness for planting in Minnesota: Duchess, Hibernal, Charlamoff, Patten's Greening.

Of the second degree of hardiness: Wealthy, Tetofsky, Malinda, Okabena, Peerless, Northwestern Greening.

Most profitable varieties for commercial planting: Wealthy, Duchess, Patten's Greening, Okabena, Northwestern Greening.

Varieties for trial: Repka Malenka, Anisim, Yellow Sweet, Brett, Scott's Winter, University, Newells, Lowland Raspberry, Estelline, Iowa Beauty, Jewell's Winter, Yahnke, Gilbert.

Valuable in some locations: Wolf River, McMahon, Yellow Transparent, Longfield.

CRABS AND HYBRIDS.

For general cultivation: Virginia, Whitney, Early Strawberry, Minnesota, Sweet Russet, Gideon No. 6, Briar Sweet, Florence, Transcendent.

Varieties for trial: Lyman's Prolific, Faribault, Shields.

PLUMS.

For general cultivation: De Soto, Forest Garden, Cheney, Wolf (freestone), Rollingstone, Wyant, Surprise.

Most promising for trial: Ocheeda, New Ulm, Stoddard, Mankato, Aitkin, Brittlewood, Compass Cherry.

GRAPES.

In order of ripening: Beta, Moore's Early, Janesville, Brighton, Delaware, Worden, Agawam, Concord.

RASPBERRIES.

Red varieties: Turner, Marlborough, Cuthbert, Brandywine, Loudon, King.

Black and purple varieties: Ohio, Palmer, Nemaha, Gregg, Older, Columbian, Kansas, Cumberland.

BLACKBERRIES.

Ancient Briton, Snyder, Badger.

CURRANTS.

Red Dutch, White Grape, Victoria, Stewart, Long Bunch Holland, North Star, Pomona, Red Cross.

GOOSEBERRIES.

Houghton, Downing, Champion, Pearl.

STRAWBERRIES.

Perfect varieties: Bederwood, Enhance, Lovett, Splendid, Mary, Clyde, Senator Dunlap.

Imperfect varieties: Crescent, Warfield, Haverland.

NATIVE FRUITS.

Valuable for trial: Dwarf Juneberry, sand cherry, buffalo berry, high bush cranberry.

Prof. S. B. Green: I might say in further explanation of this report that the committee did not change the list of the first degree of hardiness.

In the second degree of hardiness we simply dropped the Longfield. We take the Longfield out of that list and put it down under the head of "valuable in some locations."

Then we have added another list which we have entitled in this way: "Most valuable varieties for commercial planting." In this list we have put the Wealthy, Duchess, Patten's Greening, Okabena and Northwestern Greening.

To the list of varieties recommended for trial we have added the Gilbert and dropped the Kaump.

We have also added the Northwestern Greening to the list of varieties of the second degree of hardiness.

In the list of crabs and hybrids we have made no change; the list remains as it was last year.

In the list of plums we have added the word (freestone) after the Wolf. We have dropped the New Ulm plum altogether, and for this reason: It is a large variety, of good quality, and the tree is productive, but it is a difficult tree to grow in the nursery, and nurserymen have practically stopped growing it. It is a very crooked grower, and we thought it had better be dropped from the list because it is almost impossible to obtain it.

We have added the Cumberland to the list of cap raspberries.

To the list of native fruits we have added the high bush cranberry.

This in substance about covers the report of the committee, and I will move the adoption of the report.

Mr. Emil Sahler: With me the New Ulm plum does excellently and is a very fine plum.

Mr. Dewain Cook: The New Ulm is a fine and large plum. The tree grows very crooked, but the main fault is that it rots so badly that we can hardly use it. I scarcely can get enough for my own use.

Mr. A. B. Lyman: We find it to be of a very good quality, but it rots badly.

Capt. A. H. Reed: Why is not the Hibernal on the list of commercial varieties? Is it not worthy of being placed on that list?

Mr. Wedge: Let me answer that question. I have perhaps had as much experience with the Hibernal in a commercial way as any of you. You know I became rather "stuck" on that apple and planted it quite largely. I think I have a thousand trees in bearing now. If it would keep at all in barrels I would think considerably of it, because it is, of course, perfectly hardy, and it is very free from disease—scab, for instance. Some other varieties have already suffered severely from scab. The Patten's Greening, I think, has been injured fifty per cent by scab, especially in close situations in the orchard, but the Hibernal has been absolutely free. We have no difficulty in disposing of them commercially, and I think we sold a carload of them this year and two carloads last year. But the apple cannot be kept in barrels for any length of time whatever. In a week they will have specks and spots if kept from the air. I have tried every way I could think of to avoid it, but I can do nothing to remedy the trouble. I do not see how we can recommend it as a commercial variety if we cannot ship it in barrels. We might ship it, but it must be consumed immediately.

Capt. A. H. Reed: It certainly is a profitable apple, because it is a great bearer, and if it can be disposed of in any way it seems to me it is profitable.

Mr. Wedge: It is profitable in the home orchard, especially in the northern part of the state, and I am not ashamed of "booming" the Hibernal, because I think it is a good apple for certain localities, especially, as I said, in the northern part of the state, but as a commercial apple I do not think it is going to be a success. By picking the Hibernal a week before we naturally would it will come out a great deal better and stand more.

Rotating Garden Crops.—My experience has been that it is necessary where such deep-rooted crops as beets, turnips, parsnips, etc., have been grown one year, that they be followed by those which do not penetrate the soil to such an extent. For the latter, I select onions, lettuce, spinach, cabbage, etc. Also alternate corn with melons, cucumbers, squash and the like. Plants of the cabbage family if grown continuously on the same soil become diseased and club-rooted. I find rotation in garden crops is just an essential to success as the changing of grain in the fields. In many cases it is not as difficult to secure this rotation as some people think. A little planning before garden time will make it clear.—O. J. Farmer.

REPORT OF COMMITTEE ON ORNAMENTAL LIST.

C. M. LORING, CHAIRMAN, MINNEAPOLIS.

In presenting the following list of ornamental shrubs, your committee has selected such varieties as we know to be perfectly hardy and of easy culture, and in the interest of the amateur planter only. It recognizes the fact that the average householder who wishes to embellish his home grounds resorts to the catalogue with its beautifully colored plates, which, perhaps, he has received by mail from some enterprising nurseryman or dealer in one of the middle states, and from the long list of many pages of beautiful shrubs described he selects an assortment which he is sure is going to make his front yard a banner of glory. Like thousands of others in the west who have passed through the same experience, his selections are of varieties that are hardy where the catalogue is printed but will not withstand the climate of Minnesota, and his efforts result in disappointment.

Your committee advise that there are nurseries in the northwest where all of the hardy stock can be obtained and that it is inadvisable to order from dealers further south.

SYRINGA; LILAC.

Your committee place first on the list this most valuable shrub, which is among the earliest to awake from the winter sleep and which remains green long after the majority of deciduous shrubs have shed their leaves. In May its trusses of fragrant bloom give evidence that summer is near. From the common lilac, which should be in every collection, there have been produced something over one hundred and fifty varieties, of which a few of the finest are named.

Varieties.—Joseka Rubra, very dark; Ludwig Spath, purple; Dr. Lindley, fine large purple; Chas. X, rose color; Marie Le Graye, white; Rouen, feathery white; Rouen, feathery pink; Persian; Japan tree lilac.

UPRIGHT, OR BUSH, HONEYSUCKLES.

Strong, hardy shrubs of erect habit which blossom early, and in the autumn have bright red or orange berries.

Varieties.—Grandiflora, pink flowers; Grandiflora Alba, white flowers; Splendens, flowers dark red; Oriental, fruit large and very attractive.

SPIREAS.

Elegant, hardy shrubs of easy culture.

The spireas are among the most satisfactory of all the shrubs. All the season the foliage is delicate, and the habit of the shrub very graceful. Its wealth of bloom is wonderfully beautiful.

Varieties.—Van Houttei, white, the queen of them all; Arguta, very early, dwarf habit, white; Mongolica, flowers white; Lanceolata, white, blooms in June; Robusta, double flowers; Willow-Leaved, rose colored flowers; Paniculata Rosea, rose colored; Golden, foliage bright yellow, very effective in groups.

VIRURNUMS.

The grand old snowball is one of the most satisfactory of the large shrubs. The Japan snowball is smaller and is a fine bloomer. The high bush cranberry resembles the snowball in its foliage. Its greatest attraction is the brilliant clusters of red berries which sometimes remain through the winter. In the autumn its foliage turns to bright colors, which remain until freezing weather.

Varieties.—Snowball, common; Snowball, tomentosum; High bush cranberry.

PHILADELPHUS, SYRINGA, OR MOCK ORANGE.

A large shrub twelve to fifteen feet having flowers which some think resemble orange blossoms. The foliage comes out rather late, but it is a valuable and satisfactory shrub to have in the collection, especially where one has plenty of room. When in bloom it is a glorious object. It is as hardy as our oak, and does well in the shade. There are several dwarf varieties which as a rule are not free bloomers.

Varieties.—Grandiflora, large white flowers; Flora pleno, double flowering; Pekinensis, flowers white, fragrant; Speciosus, late flowering.

BARBERRY.

A very pretty shrub for groups. Its red fruit very ornamental in autumn and winter. The purple-leaved variety makes a fine contrast with the green.

Varieties.—Canadensis, native barberry; Ilicifolia, holly-leaved; Purpurea, purple foliage.

CARAGANA, SIBERIAN PEA TREE.

Very pretty shrub which grows well in the shade. It has a habit of some of its leaves withering when the sun is too strong. It is worthy of a place in the collection.

WEIGELA.

The committee has included this beautiful shrub notwithstanding that occasionally it will be winter-killed, but as it grows rapidly from the roots it is considered too valuable to be left off.

Varieties.—Weigela rosea, when in bloom is a mass of pink flowers; Sieboldi, variegated leaves, worth trying.

HYDRANGEA.

One of the most valuable of flowering shrubs. The flowers are in great clusters eight to ten inches long, white when they first come out and gradually turning to a rich cream and light purple, variegated color. When cut they dry retaining their color, and make fine ornaments for the house in winter.

Varieties.—Paniculata grandiflora.

FLOWERING CURRANT.

An old-fashioned shrub which greets us in early spring with its wealth of golden flowers. The habit is straggling, but with a free use of the shears it can be made a most desirable addition to a collection.

RED-BERRIED ELDER.

A wonderfully beautiful shrub for a background where one has room. Its white blossoms in spring and red berries in autumn make it very valuable.

Your committee submits this list knowing that there are many hardy shrubs which could be added, but it believes that better results can be obtained by confining it to a small number of well tried varieties than by confusing the mind with a longer one.

In closing this report we wish to call the attention of members of this society to the beautiful results which can be obtained through the use of vines to cover old sheds and out-buildings and front porches with vines, and it recommends among the most effective and easiest of culture the following:

Wild Grape.—A rapid grower which holds its foliage late and is not infested with insects.

Engleman's Ampelopsis, or Woodbine.

Bitter Sweet.—A beautiful glossy leaved vine, with orange berries, which remain on all winter.

Japanese Clematis.—Covered in early autumn with a wonderful mass of small white flowers.

Mr. C. M. Loring: I wish I might say a word that would induce our friends from the country and from the country villages to do more toward embellishing their homes. I know the sentiment is current not only all over the state of Minnesota, but all over the United States. I am in a position to know by the vast number of improvement associations that have been organized within the last two years. The work of the last ten years has been a revolution and a transformation to a great many communities. There is no reason in the world why the state of Minnesota should not be one of the most beautiful states in the Union—it was the most beautiful state before it was inhabited by man. Of course, when man built his home here he destroyed some of its beauty, but there is no reason why we should not, after we have built our home, embellish it and make it as beautiful as any New England home. I visited some thirty odd villages in New England some three years ago, and every one of them was beautiful, every one had beautiful avenues of trees, and all of them had parks and flowers.

Mr. J. H. Larson: Do you consider the red berried elder poisonous?

Mr. Loring: No, it is not poisonous; not at all.

Mr. Ferris (Ia.): Is the Japan clematis, the last flower you spoke of, is it the one known as paniculata?

Mr. Loring: Yes, it is the same. There are a number of varieties, but this is considered the most valuable.

Mr. J. F. Benjamin: Have you had any experience in planting the white birch as an avenue or road tree?

Mr. Loring: I will answer the question by saying that I have seen a few of them used, but I should not consider it a good road tree. I know of an avenue of cut-leafed birch that at present is rather beautiful, but, as we all know, they are very short lived, and an avenue so planted would very soon begin to lose its trees. I have never seen an entire avenue of white birch, but I have seen them planted on an avenue.

Prof. N. E. Hansen (S. D.): By short lived, how long do you mean?

Mr. Loring: Twenty to twenty-five years.

Prof. Hansen: If it is irrigated in the fall?

Mr. Loring: I do not think it would answer; they will die anyway.

The President: We all know we did not need any irrigation the past two seasons, but there was the same difficulty with the birch, they were all affected very seriously. One of the most beautiful birches in our city, out by itself and with an abundance of moisture, has been slowly dying and is practically dead now

Prof. Hansen: I would like to know more about the cut-leafed birch. I am sorry to hear that it is short lived. I would like to know about the stock. I think in Europe they in-arch on other stock. Why would it not be a good idea to do something of that kind. I would not like to have it thrown out altogether.

Mr. Loring: I have had quite a little experience, and I certainly would not throw it out. If I knew it was going to die, I would certainly plant it.

Mr. C. E. Older: If I knew I had to plant the cut-leafed birch every ten years, I would plant it anyway.

Mr. Ferris (Ia.): I would just like to state a fact in regard to the white birch. We have trees at Hampton at least thirty years old. Mr. Bender has those trees, and they are very nice trees, but I do not know how to propagate them.

Mr. T. E. Perkins: My first trial in planting trees was in planting the white birch. That was forty years ago last spring, and they are growing still, but they are not so handsome looking a tree as some others.

Mr. C. E. Older: I think as birches grow older they lose their beauty by reason of their losing their lower branches. There is a row of birches Mr. Ness planted in Luverne twenty-five years ago, but they are not as handsome as the younger trees.

Mr. Benjamin: I was up in the northern part of the state a few weeks ago, and I saw many trees there that would make large saw logs, and on the way down I took up some small birches, and I thought if they were easily transplanted I would get some more and plant them. The only trouble is in keeping the boys from peeling off the bark.

Mr. Loring: Don't put out the white birch when we have such good trees as the elm and linden. The white birch is entirely out of place when we can get such trees.

The President: I live about a mile from the city limits of Albert Lea. The soil is sandy, we have good roads, and it is natural for people to drive out our way. We have recently finished the work in our present location, and we are now interested in improving the highway. I have some idea of planting some pines like Mr. Dartt. How would a row of ponderosa pine do on either side of the street?

Mr. Loring: You ask that question of me, and I will reply by saying that if I lived there I would be very much opposed to it. I have seen rows of pine trees on avenues down in New England, but it does not seem to me as though they are really an avenue tree. Such grand effects as we get in New England—as every New Englander knows—wherever you go you find those grand old elms reaching their tops together over the road in the most graceful and beautiful manner, and if I planted a street tree I should not want to plant anything that would stick up like a tin soldier. Nearly all the states in the Union have adopted some method to encourage the planting of trees. The state of Pennsylvania gives fifty cents for every tree planted. They recommend the planting of trees seventy feet apart. Some of our people think it is entirely too far apart. They do not realize that some trees spread from sixty to seventy-five feet. The park board of Minneapolis adopted the system of planting thirty-three feet apart to conform to the length of the blocks. They soon found that that was entirely too close, the trees becoming crowded, and now they have adopted a distance of forty feet, and they know that that distance is really not enough. The park commission of Rochester, N. Y., adopted a system of fifty feet apart, and the commission has taken entire charge of tree planting in that city. In some of the eastern cities, Springfield, Mass., for instance, they are taking out the trees that are planted narrower than thirty or forty feet. All through the country, wherever we go, not only in the east, but in the west, we find trees planted ten to fifteen feet apart, elm trees that today should make a beautiful appearance, but they will never become what an elm tree should be. We have a tree that many people are prejudiced against, and that is the silver leaf maple. It is one of the most beautiful trees that grows. It does not grow any faster than the soft maple, but it is a very beautiful tree, and if it is properly cared for when set out and properly trimmed it will have an effect that many people do not dream of. The reason why it breaks is that when it is planted it generally burns on the southwest side because it is not protected from the sun; then it becomes a diseased tree, and the winds come and break it. I know some of the most beautiful avenues in the United States planted with soft maple trees, and the most beautiful avenue I ever saw was planted with red maple. There is no reason in the world why we should not raise more of the white maple trees. It retains its leaves much later in the fall than the elm, and the elm is apt to turn rusty in the fall. I can show you an avenue in Minneapolis planted on one side with elm and on the other side with maple, and one is as large as the other. There are as many broken limbs on the elm as there are on the maple. The reason we do not plant more of the maple is because we think they will break. Prof. Green has a row of maple trees that is a joy to my eyes every time I go to visit him. They are perfect in shape, they are growing rapidly, and he has one of the most beautiful avenues I ever saw.

Prof. Green: Right along this line it may be interesting to know how much a street tree is considered worth, how much a man will take for it when it has been in the street ten to fifteen years. That has to be decided sometimes. The gaslight company put in some mains out our way and quite a good many trees were killed. The gas company settled that question with one of my neighbors. They did not take the case into court, but they paid him $100 for three box elder trees, fifteen years old planted 8 to 10 feet apart.

Mr. C. E. Older: A number of years ago I was in Chicago and saw a lot of trees set out with limbs cut back and wound with hay ropes. I asked them what the idea was of putting ropes around the trees. They said the ropes were put on until the circulation was established. They left those hay ropes on until they rotted, and they claimed they never were affected with sun scald as the maple trees are that we plant. You take a soft maple tree and set it out on the prairie, and it will sun scald the first few weeks it is set out. When I set them out, I wind them with burlap and tie it with fine string, and I leave that on until the next year.

If the trees need manure it may be put on any time during the winter, or toward spring. The quantity should be regulated by the condition of the soil and the apparent needs of the trees, as shown by the growth. If the manure is coarse the ground may usually be fairly well covered out a few feet beyond the ends of the branches, and if the trees are large no harm will be done if the entire surface of the ground is covered. The more strawy the manure the better it is for the purpose.

Secretary's Corner.

How the "Journal Hits Us.—"The haughty-culturists of Minnesota may well be proud of their record at the World's Fair."

So. Minn. Hort. Society Meeting.—Don't forget this meeting, which convenes at Spring Valley Jan. 11, 12 and 13, the date of meeting being changed since notice was given in December Horticulturist.

Attends the Forestry Congress.—W. T. Cox, Secretary of the Minnesota Forestry Association, was in Washington the last week of December and will remain to attend the annual session of the National Forestry Congress.

Prof. Green and the American Forestry Congress.—Prof. Samuel B. Green is to attend the American Forestry Congress in session in Washington, D. C., Jan. 2 to 6. He goes as an authorized representative of this society, and we may expect in the February Horticulturist an interesting report of this gathering.

Northeastern Iowa Horticultural Society.—This neighboring association held its annual meeting at West Union, Iowa, Dec. 20-21-22. Mr. S. D. Richardson, of Winnebago City, was the representative of this society at this gathering, and we may look for a report from him in the February Horticulturist.

Death of Mrs. N. E Hanson.—The host of friends of Prof. N. E. Hansen in our society will sympathize with him in the death of his wife, which occurred Friday morning, Dec. 16th, at their home in Brookings, S. D. Prof. Prof. Hanson is not only an honorary life member of this society, but much endeared to many of us as well personally.

Annual Meeting of the Iowa State Horticultural Society.—Mr. Frank Yahnke, of Winona, attended this meeting as delegate from the Minnesota society. We should have had the report of this meeting to publish in this number had it not been for the fact that Mr. Yahnke went at once to attend the annual meeting of the Northeastern Iowa Society. The report however will appear in the February number.

Prof. Hays, Asst. Sec'y of Agriculture.—An honor has come to our state and to our state university in the appointment of Prof. W. M. Hays, for the past fifteen years professor of agriculture in the Minn. College of Agriculture, as assistant secretary of agriculture. Prof. Hays is already in Washington at his new post. He has been a most loyal member of this society for many years, and we consider ourselves fortunate to have so influential a friend "at court."

Have You Received the 1904 Report?—There has been as usual a little delay in furnishing the report of 1904 to the members of the society for the current year. Any who were present at the annual meeting of the society and have not yet received the report should notify the secretary. Reports are not sent out to members living near or in Minneapolis except where specially requested. Will such members please call at the office for the report, which is now ready for distribution?

LECTURERS ON HORTICULTURE IN THE FARMER'S INSTITUTES.—Superintendent Gregg has arranged with Mr. Frank Yahnke to go out with one of the institute corps this winter to continue his successful work as lecturer on horticulture. William Buggs, of Stockton, will go with the other corps for a similar purpose. We expect to hear of the success of both of these workers. Mr. Buggs is not a personal acquaintance of the writer, but Mr. Yahnke vouches for him as an enthusiastic horticulturist and well adapted to fill the position.

RED RIVER VALLEY HORTICULTURAL ASSOCIATION.—This young auxiliary society, now about to close the first year of its existence, will hold its annual meeting at Crookston, February 2nd next. Members of this society living in that part of the state should bear this in mind and arrange if possible to attend this meeting. T. A. Hoverstad, superintendent of the Crookston experiment station, who is secretary of the local society, promises an interesting meeting and the attendance of some of our well known horticulturists from other parts of the state.

TREES AND SHRUBS TESTED IN MANITOBA.—A very practical and instructive bulletin under the above title has just been issued from the Central Experiment Farm, at Ottawa, Canada. It contains a long list of varieties that have been tested in Manitoba and the Northwestern territories with good descriptions, and the results of the tests are cited. There are quite a few illustrations in the bulletin. It will be valuable reading for those who take an interest in this subject. The bulletin can undoubtedly be secured by application to Wm. Saunders, Director of the Experiment Farm.

THE STEWART SEEDLING CURRANT.—Amasa Stewart, the originator of this fruit, is still in the harness at Lamarque, Texas, his present home, although his years, numbering seventy-six, would fairly entitle him to a release from arduous work. In a recent letter he speaks as follows of this seedling currant, which he originated in Minnesota and in which he certainly still takes much interest. "I cannot believe but if it had a fair trial it would yet prove valuable. It is from seed of the White Grape currant grown by the side of White Dutch, Red Dutch and Red Cherry currants. It was planted in the year of 1857. It resembles the Red Cherry currant in color, size and flavor and has marks of the White Grape." Our members will recall that this variety is one of those contained in the fruit list of the society.

WORLD'S FAIR AWARDS ON MINNESOTA FRUITS.—The following extract from a letter receive under date of Nov. 26th from L. R. Taft, chairman of the World's Fair horticultural jury, will be of special interest to all who have contributed fruit to the Minnesota exhibit. "The exhibits of fruit from Minnesota were all properly entered in the name of the growers, each of which will receive a diploma and medal except in a few cases where owing to the small size of the exhibit no award was made. Bronze medals will be furnished without charge, but if silver or gold medals are desired the cost of the medal must be paid by the recipient. Those to whom gold and silver medals have been awarded will receive medals of bronze of a distinct form, each of which will be stamped as silver or gold as well as a certificate of award."

"THE GARDEN MAGAZINE."—A new monthly horticultural paper, under the above title, is about to be issued by Doubleday, Page & Co., New York City. As editors of "Country Life in America" and "World's Work," they have established a reputation for doing things exceedingly well, and are promising something equally as good for the new horticultural monthly. There will be a large number of regular departments in the monthly, devoted to various branches of gardening. I judge by the prospectus that more attention is to be paid to floriculture than to pomology, which will, of course, add to the value of the publication for a large class of readers who are not specially interested in fruit growing but only in ornamenting their places. We are anticipating the first issue of this magazine with special interest. The subscription rate is unannounced.

DEATH OF PROF. J. L. Budd.—A despatch to the press dated Des Moines, Dec. 21, announces the death of Prof. J. L. Budd at San Antonio, Texas, where he has been making his home for some years. Prof. Budd is well known to all Minnesota horticulturists from his connection for a great many years with the Iowa State Experiment Station as the head of its horticultural department. His visit to Russia in 1887 brought into prominence Russian varieties for northwestern use and had much to do with the founding of the successful pomology of this region. Within a few years, assisted by Prof. N. E. Hanson, he has embodied in a work entitled "Principles of American Horticulture," his experience and knowledge of this subject. We hope to be able to publish a suitable biography of this noted pomologist in an early number of the Horticulturist.

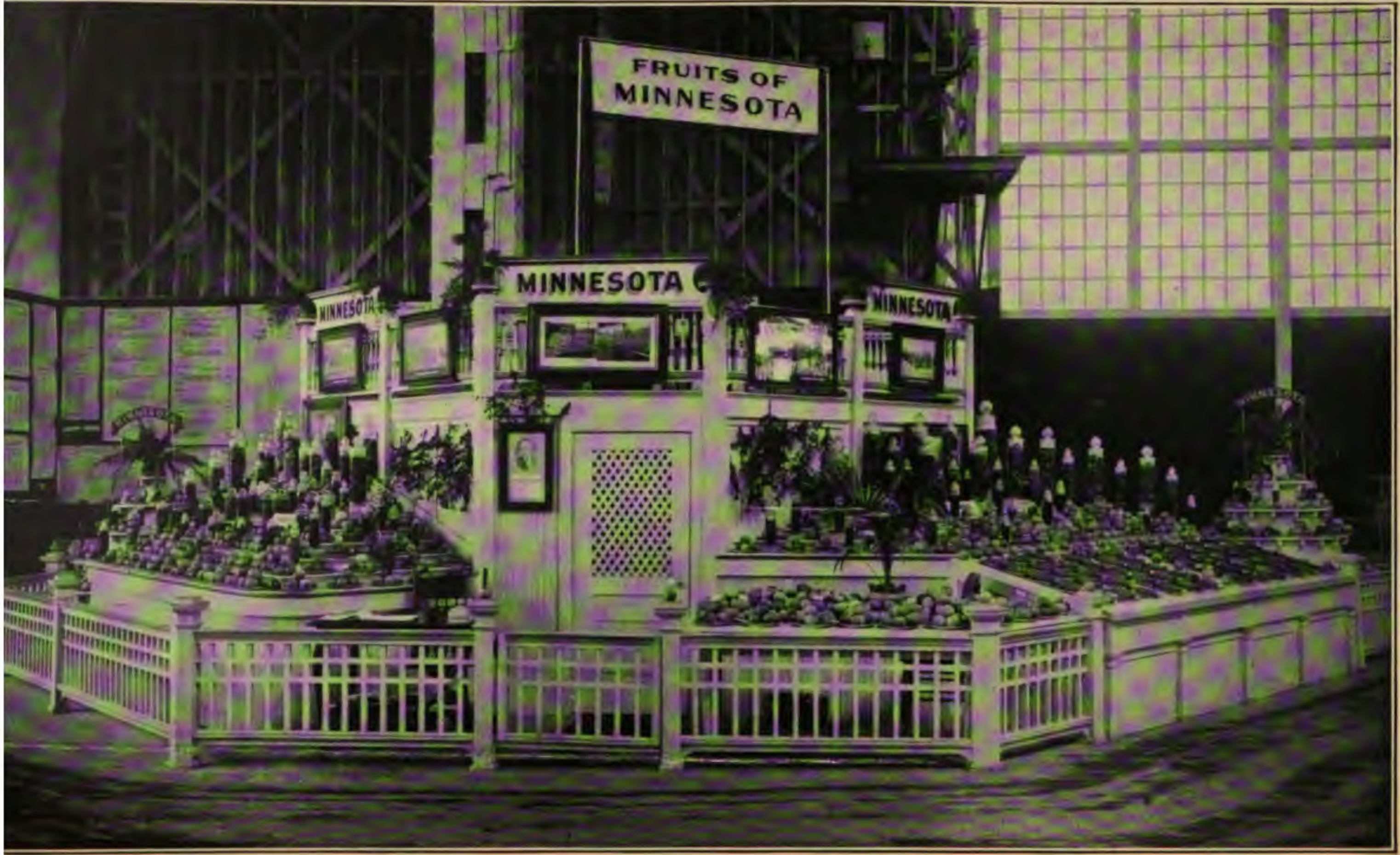
IS YOUR MEMBERSHIP RENEWED FOR 1905.—As announced in the circular letter sent out to all members of the society late in November, when nothing to the contrary is heard it is taken for granted that members for 1904 wish to have their names continued on the roll of the society, and in accordance therewith this number of the Horticulturist is sent to all the members for the preceding year who have not definitely expressed a desire to have their names taken from the roll, and is sent with the tactic understanding that they are to continue members of the society. The association is naturally very loth to drop from its roll any members, and we hope to continue thereon during the year upon which we are now entering practically the entire membership of 1094. Any receiving this number who have not renewed membership for 1905 or made some definite arrangements as to the time of doing so are earnestly requested to give the matter early attention.

AWARDS TO MINNESOTA EXHIBITORS OF FRUIT AT THE WORLD'S FAIR.—A list of awards made, not only to the exhibit of fruit from Minnesota as a whole but also to those who contributed as individuals to this exhibit, came into the hands of the secretary some weeks since and was published in full in a number of the state papers. The list, however, was not an official one, although probably a correct one. As soon as an official list is received it will be published with the final report of the superintendent of the exhibit in our monthly and in this way become a part of the records of the horticultural society. The number of awards is unexpectedly large. There were five gold medals, thirty-eight silver, thirty-eight bronze and one grand prize. We are informed that our state exhibit at the World's Fair fared better in the matter of awards than many others. While a good deal of poor fruit was sent down there, the result of inexperience on the part of the contributors, there was also a great amount of splendid fruit, and it is on this showing that the awards have been made.

PLANT PREMIUMS FOR 1905.—Some changes has been made in the list of premiums for 1905, and the new list will be found on the inside cover of the front page of the January number, also on the pink folder which is sent out with the membership tickets. The changes consist chiefly in the addition of three premiums, all of them seedlings Two of them, marked Nos. 14 and 15, are for apple and plum seedlings of a size too large to send by mail. They must be sent by express, and the members will be expected to pay the express charges, which probably will not exceed $ .25. The experimenting with apple and plum seedlings where grown from selected seed is sure to be an interesting one, and we are hopeful that many valuable seedlings will be brought into fruitage in this way. Please note that all applications for premiums must reach the secretary before the first of April.

PREMIUMS FOR GETTING NEW MEMBERS.—Besides the books that have heretofore been offered as premiums to our members who secure new members for the society, there has been added to the list ten other volumns of valuable works on horticulture, so that those who serve the society in this way will have a long list to select from. Every one of these books is of a practical character and will be found helpful in the work of the horticulturist. They cover nursery work, plant breeding, forcing and all branches of fruit growing as well as flowers, forestry, etc. A book of special value to the flower gardener isthe "Amateur Practical Gardening Book." There is nothing in the title to indicate that a large portion of it is devoted to culture of flowers, which is the case. We desire that every member of the society should secure at least one of these books this year and in that way assist in bringing up the membership roll of the society to 2,500, the standard that has been fixed upon for 1905.

SPRAYING AND SPRAYING MACHINERY, FULLY ILLUSTRATED.—Prof. F. L. Washburn, in his annual report for 1904 as state entomologist, is devoting very much attention to the subject of spraying and spraying machinery, and as this report, which will soon be in print, can be had free of charge by addressing the author at the Experiment Station, St. Anthony Park, this early notice is inserted here that those who are interested may secure it as soon as out of press and have plenty of time to study up the subject and secure necessary machinery before the opening of spring work. The report not only discusses the subject referred to, but it is also fully illustrated showing, as a preliminary announcement of the report indicates, "all the various kinds of machinery used in spraying; it will also contain a handsome illustrated chapter on gophers, field mice, rabbits and other four-footed enemies of the nurseryman, orchardist and agriculturist. The habits of each of these are discussed in detail. with pictures showing the appearance of all of our gophers, etc., and the very best means to eradicate these pests and keep them from fruit trees. It will also contain suggestions to those working in the flower garden as to the best means of getting rid of some of the pests which lessen our yield of flowers; also some late remedies for the more common pests of the vegetable garden; an illustrated article on the common toad, showing how it is a most practicable friend to gardeners; an account of nurseries inspected during the last year; an illustrated article on the plum curculio attacking apples, and a fully illustrated key to insects affecting the raspberry, blackberry, currant, gooseberry, strawberry, grape, melon, etc. Many other articles too numerous to mention are included in the table of contents."



MINNESOTA FRUIT EXHIBIT AT ST. LOUIS WORLD'S FAIR.

This picture was taken in September, at the time of the Plum Exhibit.

THE MINNESOTA
HORTICULTURIST.

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MINNESOTA FRUIT EXHIBIT AT THE WORLD'S FAIR, FINAL REPORT.

A. W. LATHAM, SUPT.

The report made to this meeting a year ago at this time brought the Minnesota fruit exhibit down to that date, which included the storage of fruits and the selection of space for the exhibit. The space selected was a five-sided one, some forty-two feet long by eighteen feet wide. Plans were drawn for an installation to occupy this odd shaped space, providing for a principal frontage of about forty feet on the main aisle, lying north of the space. There was of necessity a frontage on each one of the five sides. The installation provided for the use of the two turn-tables which were used at the Chicago exposition, and there were three refrigerator cases with double glass covers on the side of the principal frontage and two refrigerator cases on the adjacent side facing towards the center of the hall. For a fuller description of these plans see page 99 in the report of this society for 1904.

The structure to occupy this space was made in Minneapolis and, together with the equipment, was shipped to St. Louis in a car by itself early in March. The last of that month I went to St. Louis in company with Mr. Thos. Redpath and remained there until the structure was erected. I returned to Minneapolis early in April, but Mr. Redpath stayed behind to paint the structure and remained there in charge of the exhibit up to the close of the Fair, Dec. 1st, rendering service of conspicuous fidelity. About the 25th of April I returned to St. Louis and was there until the 7th of May, assisting in preparing the exhibit for opening day, May 1st, and completing necessary details.

Twenty-two bushels of apples were shipped from the cold storage in Minneapolis in be placed upon the shelves at the opening of the fair. On opening day, May 1st, every feature of the Minnesota exhibit was in place and complete except that we had not been able to find the motor to run the turn-tables, nor secure power for its operation. Before coming away, however, the motor was found, having been delivered by mistake at the Idaho building, and connections were made so that as soon as the power was turned on to Horticultural Hall the tables could be operated. On May 7th I returned home and have not since visited the fair.

Judging by the way the first shipment of cold storage fruit to St. Louis turned out it was evident that there would not be a sufficient quantity of apples to maintain the exhibit as we should desire. To remedy this shortage, in part, Mr. J. M. Underwood had put up at his place at Lake City about 100 additional jars of fruit, which were sent to St. Louis early in June, and preparations were made looking towards a larger exhibit of small fruits than would have been thought necessary if the apples in storage had been found to have kept well. There were stored about 120 bushels of apples, something like twice as many as were stored for our exhibit at the Chicago exposition, and this, it was thought, would be a sufficient quantity, as the St. Louis installation required only about one-fifth more plates of fruits to cover it.

The original purpose was to have shipped small fruits to the World's Fair by express in ordinary cases, but as the time of shipment drew nigh and the urgency of the situation developed it became apparent that there was too much risk in undertaking to transport sufficient small fruits such a distance in the ordinary way. Refrigerator cars could not be obtained, and the next recourse was small refrigerators, which might go back and forth. There were no refrigerators in the market that could be bought adapted to this purpose, and so ten were constructed from a special design made to hold forty-eight quarts each. While these refrigerators were not perfect in the results obtained by their use, in the main they answered the purpose well, and most of the fruit that went to the fair in them arrived in fairly good condition, some of the time in excellent shape, and, I believe, at no time was the fruit actually spoiled. After sending these refrigerators off at the first, I never saw them again, with a single exception, and had no opportunity personally of correcting defects. Mr. Wedge made a radical improvement in one or two that were passing between Albert Lea and St. Louis, and others between Excelsior and St. Louis were also changed in a similar way. The shipments of small fruit were mainly from Albert Lea, Owatonna, Lake City, Faribault and Excelsior, although smaller quantities went from a large number of places in ordinary cases, as the refrigerators were not available for use for the many smaller shipments that were made by our contributors. There were at times several hundred plates of small fruits on exhibition at once. The strawberry exhibit on the whole was very satisfactory, and the same may be fairly said of the exhibits of raspberries and other small fruits. We were especially fortunate in getting some very fine blackberries from Excelsior during the month of August. It helped the exhibit out materially at a time when specially needed.

The last of the cold storage apples being gone about the middle of August we were dependent upon early ripening apples to cover the shelves, as we had anticipated, but unfortunately the season this year was two or three weeks late, and, besides, early ripening apples, especially the Duchess, lacked in many cases the large size which they usually attain. This defect, indeed, was noticed throughout the entire apple season, many of the contributors being unable to send fruit anywhere near up to the usual size of Minnesota varieties. This peculiar condition of things was very unfortunate for the fruit exhibit during the period after the time of the small fruits and before later ripening apples like the Wealthy had matured. Aside from some very fine exhibits of grapes, mostly from the Minnetonka region, and the excellent showing of native cultivated plums made by many contributors, the fruit exhibit from our state during the month of August and up till late in September was not what we could have wished, and yet it was the best that we were able to make with the assistance of a host of willing contributors.

During the last two months of the fair, the Minnesota fruit exhibit has, I judge from the reports that have come to me from many sources, been a very satisfactory one. Plenty of beautifully colored Wealthy, interspersed with Northwestern Greening, Patten's Greening, McMahon White, and a very full line of other Minnesota varieties, made up an exhibit of which we need not, I am sure, be ashamed.

Besides the regular state exhibit, of which I had the charge, the Minnesota Commission were also wise in sending down to set up in Horticultural Hall the windmill veneered with apples which was exhibited at the state fair by the Jewell Nursery Company. This exhibit is reported to be one of the most striking features in the hall, and I have no doubt it was worth as an advertisement to the state very much more than it cost. As I was not in charge of this feature of the Minnesota exhibit, I do not speak more in detail of it. An engraving of the windmill exhibit appeared as frontispiece of the last issue of the "Horticulturist," and one of the regular state exhibit, taken during the plum season, appears in connection with the publication of this article.

I should speak of a very fine exhibit of several varieties of cranberries, about two bushels, that was sent to the fair in October by H. A. Lory, of Stanchfield, and remained on exhibition in good condition until about the close of the fair.

Where so many contributed to the success of an enterprise it is almost invidious to speak of any special ones. While scores of our members contributed to this exhibit, some, however, were especially helpful, and their names should be mentioned. Mr. Wyman Elliot gave about two weeks of his time without compensation to this work, at a time when his help was most needed. He took a trip from Minneapolis to Albert Lea, stopping at the stations along the way and visiting some of the fruit growers; and later went to Duluth in the interest of a strawberry exhibit from that section, which latter visit resulted in the exhibit at St. Louis of probably the finest and certainly some of the latest strawberries that went there. Mr. Elliot also put in considerable time at Excelsior collecting fruit for shipment to the fair. Our president, Mr. Wedge, who had charge of shipments from Albert Lea, was also especially helpful in this work, which was without compensation to him. The same may be said of Mr. Cashman, of Owatonna, and, of course, it is not necessary to say this of Mr. J. M. Underwood, who, as you know, is a member of the Minnesota World's Fair Commission, and stood ready at all times to help in any way to advance its interest.

Thos. Redpath, Ass't Supt., and last view of the exhibit—in November.

Partial lists of the contributors to this exhibit has been published heretofore, and a list of the remainder is published in connection with this report. These lists will be found by consulting the index of the report of this society for 1904, as also a number of other articles from our members who assisted at St. Louis in connection with this exhibit. The thanks of the superintendent and the commission are due to the large number of contributors to this exhibit, and while it would be a pleasure to say that all the fruit sent there was just what was needed for the purpose, it would be very far from the truth. A large proportion of the contributions made were quite unfit for exhibition purposes, either caused by lack of judgment in the selection or in the packing, or in the handling by the transportation companies, so that a great deal of fruit sent was never put on exhibition. In some cases all of the contribution had to be set aside; generally however, something could be selected for use. These were some of the difficulties the management encountered in maintaining this display. However, in the reports referred to, no reference is made to these failures, as indeed there should be none, since all contributions were made with the right motive, and the mistakes were the result of inexperience in the work.

In the list of awards made by the World's Fair board to individual contributors and to the exhibit as a whole, it will be found that we have not failed in all particulars, there having been awarded to exhibitors four gold medals, thirty-seven silver medals and forty-one bronze medals, and to the state a Grand Prize, and to the Minnesota Commission a gold medal.

A list, also published in this number, showing the quantity of each kind of fruit on exhibit each day from July 22 to the close of the fair, will be thought worth studying by those interested in the details of the exhibit.

The Minnesota Fruit Exhibit at the World's Fair has passed into history. We have done what we could under the circumstances and with the comparatively small amount of money it was thought best to spend upon this exhibit. If compared with other state exhibits, where the amount of money expended is known, Minnesota has, I believe, no reason to be dissatisfied with the result. Making such a display at so distant a point, where all the fruit must go by express and the transportation charges alone amounted to from $1.00 to $2.00 per bushel, it eats up money very fast, and the strictest economy was necessary to hold this exhibit within the limits of $5,000.00 desired by the commission. Those who have been with the exhibit say that continual surprise was expressed by visitors at this display of fruit from Minnesota, and because little was expected of this state a comparative small exhibit was worth much to us in the final results.

AWARDS ON FRUIT IN MINNESOTA FRUIT EXHIBIT AT AT WORLD'S FAIR, ST. LOUIS, 1904.

Minnesota Commission, gold medal.
State of Minnesota; grand prize, collective exhibit of fruits.
Anderson, Louis, Rochester; bronze medal, apples.
Andrews, J. P., Faribault; bronze medal, apples.
Baldwin, H. J., Northfield; bronze medal, strawberries.
Barton, Mrs. I., Excelsior; bronze medal, apples.
Bertha, Fannie N.; silver medal, plums.
Bisbee, John, Madelia; bronze medal, apples.
Blair, C. L., St. Charles; bronze medal, apples.
Brackett, A., Excelsior; bronze medal, strawberries.
Butterfield, F. J.; bronze medal, raspberries.
Briggs & Gray, Excelsior; bronze medal, apples.
Christenson, B. P., Hutchinson; bronze medal, apples and plums.
Clinton Falls Nursery, Owatonna; bronze medal, strawberries.
Cook, Dewain, Jeffers; silver medal, apples and plums.
Crane, H. L., Excelsior; silver medal, grapes.
Deephaven Nursery Co., Deephaven; silver medal, currants.
Drum, S. H., Waseca; bronze medal, apples.
Dunsmore, Henry, Olivia; bronze medal, plums.
Eddy, W. H., Howard Lake; bronze medal, plums.
Elliot, Wyman, Minneapolis; silver medal, exhibit of fruit.
Empenger, F. J., Maple Plain; silver medal, raspberries.
Fairley, John A., Faribault; silver medal, strawberries.
Ferguson, William, Chatfield; bronze medal, apples.
Fiske, E. D., Chatfield; bronze medal, apples.
Fritze, Leonhard, Claremont; bronze medal, apples.
Fryer, W. E., Mantorville; bronze medal, plums.
Gasper, J., Chatfield; bronze medal, apples.
Goldenstar, Leo, Garden City; silver medal, apples.
Harris, F. I., La Crescent; bronze medal, apples.
Harris & Welch, La Crescent; bronze medal, strawberries.
Hart, W. W., Delavan; bronze medal, apples.
Hawkins, Alfred, Excelsior; bronze medal, plums.
Higbie, W. S., Eden Prairie; bronze medal, raspberries.
Hinckley Fruit Growers' Ass'n., Hinckley; bronze medal, strawberries.
Howard, J. A., Hammond; gold medal, apples and plums.
Howland, Frank B., Northfield; bronze medal, plums.
Hynson, R. E., Mankato; silver medal, plums.
Jenson, Jans A., Rose Creek; bronze medal, apples.
Jewell Nursery Co., Lake City; gold medal, exhibit of fruit.
Jewett, R. H. L., St. Paul; silver medal, strawberries, apples and currants.
Johnson & Co., A. A., Sebeka; silver medal, blueberries.
Johnson, Chas. W., Judson; bronze medal, plums.
Johnson, Gust, Excelsior; silver medal, grapes and blackberries.
Johnson, J. P., Excelsior; silver medal, raspberries.
Kenney, Seth, Waterville; silver medal, apples.
Leach, A. D., Excelsior; silver medal, apples and plums.
Lory, H. A., Stanchfield; silver medal, cranberries.
Lyman, A. B., Excelsior; silver medal, apples.
McComber, A., Duluth; silver medal, strawberries.
McCulley, Preston, Maple Plain; silver medal, apples.
McLeran, F. B., Wrenshall; silver medal, strawberries.
Merritt, C. W., Winona; silver medal, apples.
Moeser, Frank, St. Louis Park; silver medal, raspberries.
Moore, O. W., Spring Valley; bronze medal, plums.
Murphy, C. A., Chatfield; silver medal, apples.

Mohl, Fred, Adrian; silver medal, plums and gooseberries.
Older, C. E., Luverne; bronze medal, apples.
Oleson, M., Montevideo; silver medal, plums.
Orton, C. J., Marietta; bronze medal, plums.
Oxford, William, Freeburg; silver medal, apples.
Parker, W. L., Farmington; silver medal, apples.
Parkhill, Robert, Chatfield; bronze medal, apples.
Parks, J. S., Amboy; bronze medal, apples.
Penning, Martin, Sleepy Eye; silver medal, plums.
Perkins, T. E., Red Wing; gold medal, seedling apples.
Redpath, Thomas, gold medal, installation and care of Minnesota fruit exhibit.
Robb Bros., Winona; silver medal, apples.
Rose Hill Nursery Co., Minneapolis; silver medal, currants and gooseberries.
Rowell, H. H. S., Excelsior; bronze medal, apples.
Sargent, C. A., Red Wing; bronze medal, strawberries.
Sandrock, William, Houston; bronze medal, apples.
Schlemmer, A., Chisago City; bronze medal, dewberries and strawberries.
Schutz, R. A., Le Roy; silver medal, apples.
Shuman, H. W., Excelsior; silver medal on exhibit of fruit.
Thompson, E. H., Excelsior; silver medal, apples.
Webster, D. C., La Crescent; bronze medal, strawberries.
Wedge, Clarence, Albert Lea; silver medal, strawberries and raspberries.
Wedge, Clarence, Albert Lea; bronze medal on peonies.
Widmoyer, W. S., Dresbach; silver medal, exhibit of fruit.
Westman, H. G., Sandstone; silver medal, strawberries.
Wilfert, Andrew, Cleveland; bronze medal, plums.
Wright, A. N., Owatonna; bronze medal, plums.
Yahnke, Frank, Winona, silver medal on exhibit of fruit.

CONTRIBUTIONS OF FRUIT TO MINN. FRUIT EXHIBIT, WORLD'S FAIR, OCT. 17 TO DEC. 1, 1904.

Oct. 17—H. L. Crane, Excelsior, 12 baskets grapes, Concord and Duchess; D. F. Akin, Farmington, 1 box apples, seedlings; J. A. Howard, Hammond, 1 barrel Northwestern Greenings and Wealthy.

Oct. 24—J. A. Howard, Hammond, 2 barrels Wealthy, Haas, Wolf River; Seth H. Kenney, Waterville, 3 plates apples, Wealthy, Malinda, Northwestern Greening, H. A. Lory, Stanchfield, 32 quarts cranberries, 4 varieties.

Oct. 26—C. E. Older, Luverne, 1 box Wealthy, Patten's Greening, Duchess.

Oct. 27—Wm. Oxford, Freeburg, 1 box mixed apples.

Oct. 29—W. L. Parker, Farmington, 1 box Wolf River.

Nov. 2—From Minneapolis cold storage—4 boxes Duchess apples, 4 boxes grapes; Nov. 4, 2 boxes grapes, 1 basket grapes.

Nov. 8—J. A. Howard, Hammond, 1 barrel Northwestern Greening.

Nov. 9—A. D. Leach, Excelsior, 7 bushels apples, Patten's Greening, McMahon, Northwestern Greening.

Nov. 9—Briggs & Gray, Excelsior, 4 boxes apples, Wealthy, Patten's Greening, etc.

Nov. 11—J. A. Howard, Hammond, 2 barrels Wealthy.

Nov. 17.—Briggs & Gray, Excelsior, 2 bushels Wolf River.

Nov. 28.—Six bushels apples from Minneapolis cold storage, Duchess, Wealthy, Hibernal, Patten's Greening, Malinda.

LIST OF FRUITS DISPLAYED WITH MINNESOTA FRUIT EXHIBIT, WORLD'S FAIR.

The following table shows the various amounts of fruit of different sorts on exhibition with the Minnesota Fruit Exhibit at the World's Fair on the dates mentioned. These data were kept originally for the information of the superintendent, who, not being with the exhibit personally, desired exact information as to its condition from day to day. In preparing the final report of the exhibit it seemed that this information would be of interest to our readers, even though it does not cover all the period of the fair.

A. W. LATHAM, Supt.

	No. of Glass Jars of Fruit.	No. of Plates of Apples.	No. of Plates of Currants.	No. of Plates of Strawberries.	No. of Plates of Raspberries.	No. of Plates of Gooseberries.	No. of Plates of Blueberries.
1904—							
July 22	213	140	51	15	85	1	16
July 23	213	140	54	46	55	1	16
July 25	213	141	50	30	52	15	17
July 26	213	152	50	15	49	18	25
July 27	213	165	50	6	15	18	25
July 28	213	161	50	...	6	18	25
July 29	213	140	46	...	133	16	25
July 30	213	140	34	...	133	...	25
August 1	213	140	19	...	80	...	54
August 2	213	140	19	...	80	...	54
August 3	213	149	19	...	62	...	54
						Dewberries.	
August 4	213	149	17	...	63	4	85
August 5	213	149	17	...	63	4	85
August 6	213	205	17	...	40	4	64
				Blackberries			
August 8	211	219	10	7	29	...	85
August 9	211	227	10	7	21	...	98
August 10	211	227	2	45	4	...	85
August 11	205	234	2	45	4	...	85
August 12	205	262	...	51	...	...	85
August 13	205	263	...	51	...	...	85
August 15	205	263	...	51	...	...	85
August 16	205	258	...	40	...	...	101
August 17	205	258	...	40	...	...	101
August 18	205	258	...	40	...	...	101
August 19	205	258	...	40	...	...	101
August 20	205	258	...	26	14	...	101
					Plums		
August 22	205	282	...	...	16	...	101
August 23	205	283	...	...	18	...	99
August 24	205	260	...	42	14	...	85
August 25	205	314	...	42	14	...	57
August 26	205	314	...	14	42	...	57
							Grapes.
August 27	205	314	...	...	118	...	...
August 29	205	300	...	38	106	...	...
August 30	205	301	...	38	106	...	...
August 31	205	304	...	38	106	...	...
September 1	205	318	...	38	106	...	...
September 2	205	320	...	38	106	...	...
September 3	205	330	...	7	126	...	6
September 5	205	330	...	...	146	...	6
September 6	205	330	...	...	148	...	6
September 7	205	330	...	...	148	...	6
September 8	205	330	...	...	149	...	6
September 9	205	325	...	...	150	...	6
September 10	205	325	...	...	150	...	6
September 12	205	328	...	...	150	...	3
September 13	205	325	...	...	150	...	3
September 14	205	328	...	...	150	...	...
September 15	205	296	...	...	150	...	34

1904—	No. of Glass Jars of Fruit.	No. of Plates of Apples.	No. of Plates of Currants.	No. of Plates of Strawberries.	No. of Plates of Raspberries.	No. of Plates of Raspberries.	No. of Plates of Grapes.
September 16	205	285	...	...	165	...	47
September 17	187	250	...	...	175	...	81
September 19	187	300	...	...	175	...	114
September 20	187	300	...	...	175	...	114
September 21	187	303	...	...	175	...	111
September 22	187	314	...	...	175	3	111
September 23	187	314	...	...	175	...	111
September 24	187	314	...	...	179	...	109
			Peaches.				
September 26	187	429	2	...	173	...	58
September 27	187	362	2	...	173	...	54
September 28	187	362	2	...	173	...	54
September 29	187	396	2	...	139	...	54
September 30	187	349	2	...	102	...	54
October 1	187	356	2	...	79	...	82
October 3	187	398	1	...	13	...	105
October 4	187	398	1	...	13	...	105
October 5	187	398	1	...	13	...	105
October 6	187	398	1	...	13	...	105
October 7	187	413	1	...	13	...	90
October 8	187	413	1	...	13	...	90
October 17	187	413	...	...	...	...	90
October 18	187	413	...	...	16	...	90
October 19	187	413	...	...	16	...	90
October 20	187	449	...	...	...	...	70
October 21	187	485	...	...	...	...	84
October 22	187	485	...	...	...	...	84
						Cranberries.	
October 24	187	392	...	...	...	61	66
October 25	187	408	...	...	...	61	65
October 26	187	420	...	...	...	61	53
October 27	187	420	...	...	...	61	53
October 28	187	420	...	...	...	61	53
October 29	187	420	...	...	...	61	53
October 31	187	420	...	...	...	61	53
November 1	187	420	...	...	...	61	53
November 2	187	424	...	...	...	61	49
November 3	187	424	...	...	...	61	49
November 4	187	420	...	...	...	61	53
November 5	187	420	...	...	...	61	53
November 7	187	439	...	...	...	61	34
November 8	187	439	...	...	...	61	34
November 9	187	439	...	...	...	61	34
November 10	187	445	...	...	...	59	21
November 11	187	445	...	...	...	59	21
November 12	165	497	...	...	...	44	21
November 14	165	500	...	...	...	41	21
November 15	165	500	...	...	...	41	21
November 16	165	500	...	...	...	41	21
November 17	165	509	...	...	...	41	12
November 18	165	509	...	...	...	41	12
November 19	165	509	...	...	...	41	12
November 21	165	509	...	...	...	41	12
November 22	165	521	...	...	...	41	12
November 23	165	521	...	...	...	41	...
November 24	165	521	...	...	...	41	...
November 25	165	521	...	...	...	41	...

N. E. IOWA HORT. SOCIETY, ANNUAL MEETING, 1904.

S. D. RICHARDSON, DELEGATE, WINNEBAGO CITY.

The meeting was called to order with but few in attendance in the forenoon, but a much larger attendance in the afternoon. The society contains many able and enthusiastic horticulturists, and the meetings were profitable and interesting. There was quite a number of visiting members and delegates from other societies present at the meetings.

In discussing varieties of the apple, many persons said that while the Yellow Transparent blighted badly while young it was a money-maker for the grower. The need of more apples of good quality for eating to enable the home grower to compete successfully with the shipper was mentioned by many present. One of Mr. Patten's seedlings, the Summer Pear, of good quality but not very large or attractive, was recommended by some as a good market apple after customers found out its superior quality. A couple of papers on pruning brought out the usual diversity of opinion.

Prof. Greene, secretary of the Iowa State Society, and Prof. Little, of Ames, both thought that as the leaves were lungs of the tree to remove many of them in June would injure the tree, but that light pruning might be done at any time. Prof. Greene did not object to winter pruning if the wound was covered with paint or wax. In spring pruning, where the wound bled, there was a loss of sap all ready for growth, but did not think it would bleed enough to seriously injure the tree. Mr. Ivins would make the wound smooth by paring with a sharp chisel, but others could not see why the roughness caused by the saw was not a benefit when applying paint or wax.

A paper on the plum and discussion that followed did not bring out anything of interest to us in Minnesota, except an idea by Mr. Patten, that plums could be quickly thinned when one-fourth or one-half grown by striking the limb a quick, sharp blow with a light three-tined fork, and the result would be a larger quantity and a much better quality of fruit than there would have been if not thinned.

Prof. Greene read a paper on the orchard. He believed that there was money in raising apples in the right location; would prefer rolling ground to secure good air drainage and exemption from frost; would set trees twenty-four by thirty-two feet, and from three to six inches deeper than they grew in nursery; would cultivate, if possible, but if not would sow to clover, removing the first crop each year and allowing the second crop to remain on the ground, and by doing that keep the ground in clover. Form head of tree from two to three feet from the ground. Would spray to prevent trouble with insects and fungous diseases.

In discussing the paper, other items of interest were advanced. H. H. Fitch, delegate from the Northwestern Iowa Society, would keep in bluegrass sod, but would not mow or pasture, but let the grass lie where it grew, to conserve the rain and keep the ground moist and cool. When cultivation is followed every year, Prof. Greene would plow in green crops to keep humus in the soil. Mr. Patten would plant corn in orchard for a number of years, then seed to clover for a couple of years, then plow up and plant corn again. The fact that the oyster shell scale is very prevalent in many parts of Iowa was mentioned several times in the course of the meeting, and many of the members were much worried over it. Many orchards are covered with the scale, and it is found in large quantities on the native forest trees and hazel brush. Prof. Greene thought that the scale could be easily controlled by kerosene emulsion or whale oil soap, when the young insects were moving around, the last of May or in June; and that whitewash applied early in spring would be beneficial.

The old officers were all re-elected. Your delegate was warmly welcomed and hospitably entertained.

The display of fruit was good, and there were some very fine looking seedlings that had been thoroughly tested near Dubuque as root grafts. No. 2 looks almost like Ben Davis and tastes something like it, but is probably a much hardier tree. How much value they have for us in Minnesota could only be told by trying.

ANNUAL MEETING, 1904, IOWA STATE HORTICULTURAL SOCIETY.

FRANK YAHNKE, DELEGATE, WINONA.

Your delegate, in company with Mr. A. J. Philips, of Wisconsin, arrived at Des Moines after a night's ride, and at the hotel met some of the Iowa horticulturists, by whom we were cordially welcomed. The meeting was opened with invocation by Rev. C. H. True, followed by the address of the president, Mr. P. F. Kinne, of Storm Lake. He recommended some improvements looking to the society's promotion. He congratulated the organization upon being back in its own room in the state house.

Your delegate was made an honorary member and was invited to take part in the discussions. The Iowa people certainly know how to make their visitors feel at home.

Secretary Wesley Greene, in giving his report, recommended that the state set apart some forty acres near Des Moines for botanical garden and experiment station.

A very good paper was read by Prof. B. Fink, of Grinnell, on "Plant Stems, Their Functions and Adaptations." In the discussion it was brought out that apples would not drop on prairies where exposed to the winds any more than in sheltered places, because the stems would adapt themselves to the atmospheric conditions.

In the afternoon the society met with the "Park and Forestry Association" and the department of agriculture.

The Iowa horticulturists were rejoicing over their grand exhibit at St. Louis, and had their apple exhibit brought to the state hall. It certainly was a grand exhibit, and great credit is due to the Iowa Horticultural Society for showing such a magnificent display of apples at St. Louis, of which 800 plates were placed on tables in the hall of the state building. There were 220 plates of Northwestern Greening, eighty plates of Wolf River, 100 plates of Wealthy, and many other plates of the newer varieties. The Wealthy and Northwestern Greening were most heartily recommended for northern Iowa. Mr. Trigg said that prices for apples had not been satisfactory, but the suggestion was made that perhaps this was due to the fact that until this year the growers have not had enough apples to sell, and therefore had not prepared to handle the crop. All through the reports of the directors from the various congressional districts a hopeful tone prevailed, every member reporting that conditions for next season's crop are most excellent, with everything in fine shape for winter.

Mr. W. T. Richey, of Albia, read a paper on "Gooseberries." This crop has been profitable with him. He prefers a cool soil, plants in rows six feet apart, with plants four feet apart in row, using two-year-old plants. Prune off half of each season's growth. A plantation will last about ten years and should then be renewed. One member asked about mildew, what should be done to combat it. Mr. Harrington recommended spraying with Bordeaux mixture.

Mr. J. P. Anderson, of Lamoni, read a paper on "Strawberry Growing." Mr. Anderson plants in rows four feet apart, with plants eighteen inches to twenty-four inches in row for field culture. He said that the Senator Dunlap is by far the best on his soil, which is a prairie loam.

In a paper on "Improvement of Our Native Plums by Crossing and Selection," Charles F. Gardner gave directions for the work. Plant varieties so the branches interlace, which will secure cross-fertilization; select the best plums and plant seeds from them. Mr. Gardner said that in this work one will often get varieties which will not be perfectly hardy, but cut them off and let them grow up a new top, and the second growth will be more hardy. This is true of other fruits, apples particularly.

Some one suggested just here that the fruit-growers should not pay so much attention to new fruits, but work with the older sorts. But Mr. Philips, the delegate from Wisconsin, dissented. He told of the great work which is being done in Minnesota and by some of the growers in Iowa. "Our society has a test orchard," said Mr. Philips, "in which we have planted a number of varieties which were recommended by the best growers. Of a list of eighteen varieties of apples, there are only four which were known as far back as 1873, showing that the sorts which are recommended in our state are all of comparatively recent introduction. We do not want to shut out the newer sorts, but should keep on the lookout for better things than we have."

The Wednesday evening session was largely given over to the ladies, and many good papers were read. A feature of the evening program was the musical numbers, a song by Miss Ora Brandt, a violin solo by Mr. Mosier, and a quartet which sang two songs, the words of which were composed by Mr. Eugene Secor, one of the members of the society. These were "The Hum of the Bees in the Apple Tree Blooms," and "Buckwheat Cakes and Honey." This was a surprise to Mr. Secor and was much enjoyed by him and the other members.

At the conclusion of the program Wednesday evening the members and their wives and visitors were the guests of Secretary Wesley Greene at a banquet at Hotel Elliott, which was a most enjoyable affair. Many very good and humorous speeches were made. The close of this program was a little poem, "A Bit of Greene," by Eugene Secor, as follows:

A BIT OF GREENE.

We stretch our legs beneath the board
With greatest satisfaction
When some one else assumes the bills
That drive men to distraction;
And hence, tonight, these fruit-tree cranks—
Who turn their own heads, chiefly—
Will linger where this gratis grub
Has tickled them too briefly.

Men who have lived on Russian fruits,
And they who eat Ben Davis,
Have come to poach on Greene's preserves,
And get a taste of Avis.
Plain Johnny-cake and apple-sauce
And home-cooked pork and beans
Will seem like twenty-seven cents
Beside this feast of Greene's.

Our appetites, like Christmas socks,
  Were extra large tonight,
But Wesley, playing Santa Claus,
  Filled everything in sight.
But since we can't prolong this joy,
  And the time of parting nears,
We pray our kind and honored host
  May live a thousand years.

Thursday morning W. A. Burnap conducted a very interesting conference on spraying, which developed the fact that most of the members are convinced that spraying is not only practicable but necessary. Most of the members preferred the liquid spray.

J. S. Trigg read an interesting paper on "Profitable Apples for Northern Iowa." For commercial planting he recommended Yellow Transparent, Tetofsky, Duchess, Wealthy, Patten's Greening, Malinda and Northwestern Greening.

The remainder of the afternoon was devoted to a paper read by Mr. M. DeL. Parsons. He gave his experience with top-working, which was very interesting, and Mr. Philips gave an interesting talk on Wisconsin and Minnesota seedling apples, showing perhaps two dozen different varieties which have been originated in these states, including Northwestern Greening, Wolf River and others.

ANNUAL MEETING OF THE MINN. STATE AGRICULTURAL SOCIETY.—The annual gathering of this society was held in St. Paul, Jan. 10 to 12. Aside from the gathering of delegates on Thursday forenoon, in the business meeting, the attendance was not large and nothing like it should have been for such an interesting program. Horticulture was not represented on the program, although the professor of horticulture at the state experiment station, Samuel B. Green, presented on Wednesday afternoon the subject of agricultural education. Your secretary was a member of the committee on resolutions and was the means of embodying in the general resolutions adopted one requesting the legislature to increase the printing of our report to 6000 copies and another dwelling upon the desirability of erecting a special building for horticulture at the state fair. At the annual election of officers a few changes were made, Mr. C. M. Griggs, of St. Paul, taking the place of Mr. C. R. Smith as one of the vice-presidents, and Mr. G. W. Patterson, of Worthington, the position held by Mr. J. C. Curryer, of St. Paul, as a member of the board of managers. Mr. D. S. Hall, of Buffalo Lake, a life member of this society, was elected a member of the board in the place of Mr. N. S. Gordon, term expiring. The board as it consists at present would seem to be a very satisfactory one. Since the annual meeting, Mr. E. W. Randall has been re-elected secretary by the board and Mr. J. F. Wilcox, of Northfield, treasurer.

Vice-Presidents' Reports, 1904.

VICE-PRESIDENT'S REPORT, FIRST CONG. DIST.

C. W. MERRITT, WINONA.

Never before in the history of the first congressional district has there been so much fruit of all kinds raised and marketed. So great was the supply of apples, particularly of Duchess, that in as good a market as Winona they sold as low as 10 cts. per bushel—but in many cases they were not worth any more. Though the apples were fine in the orchard, they were loaded up in sacks and dumped into a lumber wagon box, or with a little straw or hay in the bottom were piled in loose, and carried at a rapid rate over a rough road and, of course, bruised and pounded till they would not keep over night—and the Duchess have to be well handled to keep much longer at best. But they are a good apple all the same! In a drive through the fourth ward of the city of Winona, or Poland Town, as it is familiarly known, you could see an apple wagon at every corner, surrounded with women and children, the women with large aprons or dress skirts as receptacles, into which those cheap apples were shoveled, a couple of scoop-shovelfuls for a nickle. I know, I have been there, and so have several others here from Winona—but not with those cheap apples! There were buyers of good apples, and plenty of them, at 30, 40 and 50 cents per bushel. Exceptionally fine apples—and we had some as fine Duchess as you ever saw down in that section, brought 75c, 80c and $1.00 per bu. Thousands and thousands of bushels were marketed in this way, while other thousands rotted on the ground or were fed to hogs and cattle. The crop of Wealthys, though not quite so great, was immense, as was also the yield of Peerless, Northwestern Greening, Utter's Red, Geniton, Plumb Cider, etc. There were in the market also many Wolf River and McMahon White, though personally I had as lief have a pumpkin as either one of those two. But they are beautiful to look at.

Strawberries were plentiful, with ready sale at from 6c to 10c per qt. Currants, gooseberries, raspberries and blackberries were good crops, if I except blackberries. Those fortunate enough to have blackberries could readily get a shilling and 15c per quart in the Winona market.

Plums. Speaking of plums, I think that every tree in the first district bore plums. I judge from the quantities that came to market brought in by those not in the habit of raising plums. De Soto, Wyant, Stoddard, Rollingstone, Hawkeye, Cheney, in fact any variety you could name, and hundreds that you could not name, were well represented. De Soto plums lead in their season; those that know wait for them for canning.

My neighbor, Mr. Yahnke, has a large orchard of Stoddard that this year brought him in, as they say, good money. The Forest Garden, with me at least, with ten or more props to the tree, broke badly. I wish to say right here, I hope some one during this meeting will bring up the question, "What is the difference, if any, between the Stoddard and Hawkeye?"

Currants and gooseberries are infested with worms that will destroy the bushes unless kept in subjection by the judicious use of helleboro or Paris green.

The question of blight on apple trees is one of a serious nature, with, so far as I know, no known remedy that successfully combats the disease. In our immediate neighborhood it was peculiar this season. For years the orchards, or portions of them, on the high lands have blighted badly, notably the Wealthy trees, while near the river they were comparatively free from it. But this year exactly the reverse was the case, and my Wealthy trees blighted less than any season since they were set, while those along the river blighted very much worse than ever before. Can any one account for it? Some may say, you probably sprayed more than your neighbors. The facts are that I never sprayed a spoonful, while I know the orchards along the river were well and properly sprayed.

I have watched very carefully blight on cherry trees this season. The trees seem to have pulled through and matured their wood in better shape than for several years before, less of the yellow leaves that die and fall off early in the season and a smaller percentage of dead trees. There has another enemy of the cherry tree appeared within the last year or two in our section, an ugly looking slug that will skeletonize the leaves and will, of course, eventually kill the trees unless in some manner destroyed. I have no reports on the subject from cherry growers.

Of currants, Fay's Prolific, Red Cross and Red Dutch seem to lead. Strawberries: Bederwood, Warfield, Dunlap. Raspberries: Loudon for red, Gregg for black. Blackberries: Ancient Briton, Rathburn. Plums: De Soto, Forest Garden, Stoddard, Surprise.

In answer to the following question, "If you were going to plant a new orchard, what three or four varieties of apples would lead in your selection?"

O.M. Lord.—Duchess, Wealthy, Northwestern Greening. Lord's L.

Frank Yahnke.—Northwestern Greening, Wealthy, Borovinka, Yahnke, Sugarloaf Sweet.

John Grover.—Duchess, Wealthy, Northwest Greening.

Mr. Grover, whose farm and orchard is just across the river in Wisconsin, marketed something in excess of 3,000 bu. this season. The Utter's Red, or Nonpareil, were very much in evidence in his crop, and I wonder that he did not name them in his list. They are a very good, marketable apple.

Mr. C. L. Blair for an orchard of 100 trees would set:

Duchess 5, Okabena 5, Malinda 5, Winter 5, Peerless 40, N. W. Greening 40. Mr. Blair writes that his Peerless are doing finely and are money makers.

In answer to the question, "What kind of cherries would you set for money makers?" I received but two answers:

Mr. Grover says, "Cherries are no money makers with me."

Mr. A. J. Phillips, the veteran horticulturist of West Salem, Wis., writes:

"You ask, If I were to set a new orchard for commercial purposes what three or four varieties would I set? I would set Wealthy, Longfield, Northwest Greening, Eureka and Shook—perhaps Yahnke if it proved hardy in all places. At present I would set one-half my trees Virginia crab, and top-graft them with Tallman Sweet, Eureka and Shook—that is, for a money crop.

"With me, so far, two trees of Tallman Sweet, Eureka, Longfield or Shook, top-worked, will bring me more money yearly than fifty fine trees I have of E. Richmond cherry. My trees of cherry are nice, but my soil does not seem adapted to the cherry."

In concluding this report I would like to say to the members, write promptly in answer to the request for information by the vice-president of your district, and don't confine yourselves entirely to the questions asked. Send along anything that will help to make his report to this society of value. He must of necessity depend largely upon reports from the outlying territory of his district.

Mr. Yahnke: I would like to ask Mr. Merritt a question about the Peerless: Do they keep very long?

Mr. Merritt: The Peerless keep about the same as the Wealthy with me.

Mr. Yahnke: I know you have two orchards, and I know there is a marked difference between the two orchards in respect to bearing.

Mr. Merritt: Yes, one of the orchards is set in sand, and in the other I had to dig out the holes with a pick, in gravel and red clay soil, and so hard that I had to use a pick to loosen the dirt in the hole in order to set my trees. Those on that side hill are the most prolific I have, and they are Peerless apples. The trees grow fine and large apples. I got a report from St. Louis that they were as fine as anything they had there.

Mr. Yahnke: You raised the question about the Hawkeye and the Stoddard plum. I used to think they were pretty nearly alike.

Mr. Merritt: As far as I can see they are alike. I cannot distinguish any difference between the Hawkeye and the Stoddard. I have them both on my grounds, and I can put both kinds in a basket, and you cannot tell the difference.

Mr. Yahnke: I can see a marked difference in the trees. There is small difference in the plum itself if any, but the trees are of a different shape altogether. The outside appearance of the plums is nearly alike, and it is practically impossible to distinguish one from the other, but there is a difference in the pit. Mr. Lord is posted; he can give you a description of the pit. At times the Hawkeye will do better, and at times the Stoddard will do better, and for that reason I think it is well to have both varieties. People that see them cannot tell the difference.

Mr. Merritt: Can you tell the difference when they are in the same basket?

Mr. Yahnke: When I get them mixed up I can tell, but when they are separate I cannot tell the difference. If they are mixed up the difference is more apparent, and I can pick out every one because they vary in shape, although they resemble each other. Mr. Lord can tell you more about them than I can.

Mr. Merritt: I can take two baskets of Hawkeye and Stoddard, and you cannot tell the difference.

Mr. O. M. Lord: There is quite a difference in the growth of the tree, also in the pits. The pit of the Hawkeye is broader than the pit of the Stoddard. The Stoddard is a little sweeter and softer and will not keep as long as the Hawkeye.

Mr. W. L. Taylor: I would like to ask Mr. Lord why there should be a difference between the Wolf plums, and if he can distinguish one from the other?

Mr. Lord: One has a small pit, the plum rather sweet, and the other has quite a large pit. There is much difference between the sweet Wolf and the freestone, or common, Wolf. There is a good deal more difference between them than there is between the Stoddard and the Hawkeye.

Mr. Taylor: Why not call it the "Freestone" instead of the Wolf if it is a distinct variety?

Mr. Lord: They resemble each other very much.

Mr. Merritt: Is there anything to recommend it?

Mr. Taylor: It is the most productive plum we have. I prefer the freestone Wolf; it is way ahead of the other. It produces more at Howard Lake than any plum we have.

Mr. Lord: The people generally prefer it.

VICE-PRESIDENT'S REPORT, SECOND CONG. DIST.

DAVID SECOR, WINNEBAGO CITY.

The year 1904 is remarkable in that the temperature was lower than the average, and the lowest for several years. The low temperature was protracted during the winter months and tested the endurance of trees, shrubs and plants, and some varieties not considered iron-clad were injured or killed.

It is a fact worthy of notice that the varieties of apple trees recommended by this society passed through the winter without injury, excepting in some instances there was injury to the surface roots where the ground was bare and the trees were not mulched or protected in some manner.

Rose bushes suffered severely when not covered. Some covered with earth or other protection were injured, and in some instances killed.

Blackberry bushes when not covered were killed to the ground. Uncovered raspberry bushes were injured severely and in many cases killed, and the yield from the unprotected bushes did not average more than one-fourth of a crop. The same was true of strawberry plants; mulched plants gave a good average yield.

Cherry trees suffered severely and were either killed or injured. The Homer cherry suffered as well as other varieties.

The snowfall was light, and the ground bare the most of the winter, which in part explains the cause of the more than usual injury.

Where vines and bushes were well protected by mulching or earth covering, good crops of fruit were grown.

Grape vines where protected bore a fair crop, and the fruit matured. Currants and gooseberries were an average yield.

The plum crop was unusually large. Both the native wild plum and the cultivated American varieties produced large crops, and local markets were over supplied. As a result, in some of the small towns, plums became unsalable, and many were left to rot under the trees.

It seems unfortunate, if not almost wicked, to have the fruit of such varieties as the Mankato, Rollingstone, Wyant, De Soto and other good varieties decay for want of a market.

The yield of apples was about an average. The trees that bore large crops in 1903 as a rule gave light yield, while those trees that did not bear that year were heavily loaded with fruit. In parts of the district the local markets were overstocked with home grown apples during the months of September and October, and apples of good quality were sold by the producer as low as twenty and twenty-five cents a bushel. Some nice Wealthy apples sold that low. In most of the districts there are no cold storage facilities, and many market their apples as soon as gathered, thus depressing the price. By co-operation of fruit growers in methods of marketing their crops, and in providing cold storage facilities for keeping the fruit, so as to lengthen the season, better prices can be had and better results attained.

Many young orchards have been set out in the district. Some of these are just coming into bearing, and others will bear in a few years. The local demand for apples can be supplied, and a surplus raised to ship to less favored localities.

David Secor, Winnebago City.

Quite a little experimenting is being done in growing seedling apple trees from seeds gathered from fruit of hardy trees. It is hoped that some good results will come from these experiments. On my ground the most of the seedling trees stood the test of last winter without injury, and there was no discoloration of the wood of last year's growth, even to the terminal buds.

Apple trees of bearing age that did not produce fruit this year, or that had but a light yield, are generally well set with blossom buds and give promise of a supply of apples next year. Blight was less injurious than for several years. In many orchards there was an entire absence of blight.

Gardens were generally more than usually productive, affording an ample supply of vegetables for home use.

There is a growing interest in horticulture throughout the district, and the prospect for the future is encouraging.

For general cultivation I recommend the list of fruits published by this society, that have been tested and considered worthy of general use. Some other varieties are promising and do well locally, but owing to the fact that they have not been tested on different soils and in different localities for a sufficient length of time I hesitate to recommend them.

For general culture it is considered safer to follow closely the list of fruits recommended by this society, and which are given as the result of years of experience.

Mr. Yahnke: I would like to know what variety of apples was most injured in his locality last winter?

Mr. Secor: I examined carefully all the trees in my orchard along the latter part of the winter or early part of the spring, and the trees that did not show injury were the Duchess, the Hibernal, the Silken Leaf (which is of the Duchess family), Large Anis, Volga, Anisette (which is a Duchess), Ostra Repka, Ostrekoff and Sklanka. Those showing some injury to the growth of 1903 were the Wealthy, Patten's Greening—and I may say here that I was surprised to have the Patten's Greening show a discoloration, but it was a fact, it showed about as much as the Wealthy—the Peerless, Yellow Transparent, Tetofsky, Okabena, Wyoming Red, Whitney No. 20, the Minnesota—I have a crab I do not know whether it is a Virginia, some horticulturists thought it was, but it showed a little discoloration—the Peter, Yellow Sweet and Anisim. Some of those that showed a greater discoloration, and some quite a good deal were the Northwestern Greening, Haas, Tetofsky, Scott's Winter, McMahon White, Kaump, Austin, Repka Malenka, Briar Sweet, Churchill and some other varieties.

Mr. Merritt: I would like to ask Mr. Secor what, in his opinion, was the cause of the death of the cherry trees, whether they were killed by blight or winter-killed?

Mr. Secor: Some of the trees I think were injured the year before by leaf blight, but some of the cherry trees on my grounds that did not show injury from leaf blight were badly injured last winter.

Mr. Merritt: I lost my cherry trees entirely from leaf blight.

VICE-PRESIDENT'S REPORT, THIRD CONG. DIST.

A. H. REED, GLENCOE.

In this, my second report to our annual meeting, I must confess that I have learned but little outside of my own county of interest to the society through the lack of some system, or a system, by which the vice-presidents are supplied with proper uniform blanks and the address of members, in each of the counties in their district, to whom the vice-president can look to for reports when asked, on receiving a blank on which to report his county.

I did, however, visit an apple and plum orchard in Dakota county belonging to Hon. C. F. Staples, worthy of note for the fruit it was producing while trees were uncultivated and seemingly neglected. There were several acres of apple and plum trees, containing several hundred trees, the grass knee high, growing up to the bodies of the trees. The apple trees were mostly Wealthy, about a foot in diameter, and were producing a great crop notwithstanding their neglected condition. The great cyclonic wind of about August 20th had blown many of the apples to the ground, of which a hundred and fifty bushels had been picked up and marketed at fifty cents a bushel.

The plum orchard was a magnificent sight to behold. Each and every tree was loaded with large, ripe plums to such an extent that many of the limbs hung to the ground from the weight of the fruit. I understood that the market price of plums was so low that it did not pay to gather and take them to the city a few miles distant.

I think the same condition of a large yield of apples and plums extended over the whole district. In my own county, that of McLeod, the product of standard apples was more than double what it had ever before been, and the crop of wild plums was immense. In my own garden the trees of the native or wild variety bore profusely, while my imported trees of high sounding names bore but a few, and some of them that had appeared thrifty the year before winter-killed.

At our county fair, held at Hutchinson about the middle of September, I was happily surprised to note the display of the king of all fruit, the apple, produced in the county and put on exhibition by farmers living in different sections of the county, some on the bleak prairie, where it is demonstrated that apple trees will grow, thrive and produce just as well as in the timber. In noting the different plates of apples exhibited by twelve different farmers, there were twelve plates of Wealthy, ten of Hibernal, six of Patten's Greening, six Duchess, four of Peerless, four Okabena, three Charlamof, three Northwestern Greening, two Iowa Beauty, two Longfield, one Brett, one McMahon, one Baxter, one Wolf River, one Malinda and one University. As those named included all the varieties exhibited by those twelve producers, they may be taken as a criterion as to the varieties planted and produced in the county.

I beg your indulgence in allowing me to give in this report some of my forty-seven years' experience in trying to produce apples in Minnesota, with many disappointments, and, in fact, continual disappointment until I joined the Minnesota Horticultural Society and learned to select trees upon hardy roots grown in Minnesota nurseries, and to set them out and to care for them intelligently. For the first time this season my expectation has been realized by seeing sixty out of two hundred trees planted in the spring of 1900 bear large, handsome apples.

Wealthy apple tree four years planted. On place of A. H. Reed, Glencoe.

In the spring of 1857 I obtained a thousand root-grafts from Rochester, New York, and set them on my pre-emption claim near

Glencoe, expecting the deep, rich, black soil would force such a growth that apples would be plenty near my cabin door within a very few years, but hope vanished as one by one my trees vanished before obtaining three years' growth.

My next trial was in 1871, when I obtained a lot of trees from Joel S. Shearman, proprietor of the Northwestern Nursery, of Rockford, Ill., of such varieties as the Duchess, Haas, Red Astrachan, Transcendent and Siberian crabs. The Duchess, Haas and Red Astrachan lived to bear one or two seasons and then passed in their checks, while the two Transcendents and two Siberians survived and bear fruit about every other year, the highest limbs of the Transcendent trees blighting nearly every year. The Siberian never blights.

Hibernal apple tree, four years set, bearing one bushel in 1904.
On place of A. H. Reed, Glencoe.

Trees obtained from Wisconsin nurseries and set out subsequently have all failed me, but I attribute much of the failure to my own ignorance and neglect.

As late as 1900 I commenced to set a so-called commercial orchard on my farm adjoining Glencoe, by setting two hundred trees in five rows, one rod apart each way, of the following varieties: Transcendent, Whitney, Peerless, Longfield, Hibernal, Patten's Greening and Wealthy, some twenty-five of each kind. I have been rewarded the past season by seeing sixty of those trees bearing large, handsome apples. Nearly every one of the Hibernals bore, some of them nearly a bushel, after four years from setting. The next best bearer was the Patten's Greening, and the next the Wealthy. None of my Peerless trees gave any fruit, nor did the Whitney, and but one of the Transcendents. The Hibernal proves a low branching tree, which accounts for its prolific bearing qualities, while the Peerless and Whitney are upright growers, which to my mind proves their non-bearing qualities. My Whitneys grow more the shape of a Lombardy poplar than an apple tree, and one rod apart proves sufficient distance for them, while for most standard varieties it is too close.

Each year I have extended my orchard until now it covers eight acres. I shall increase it by several acres each spring. As to the distance of setting standard apple trees apart, I have adopted twenty-four feet for the rows and twenty feet in the rows.

Raising apple trees from seed. I find it just as easy to raise apple trees from seed as it is most any garden vegetable. Procure your apple seed, native crab or Hibernal seed if you can, mix the seed with damp sand and let them set out until thoroughly frozen; then set in cellar until early spring, when sow in drills in good, rich soil. You can transplant them when two or three inches high with perfect success. Transplanted into ground spaded deep and enriched with cow manure, they will make a wonderful growth the first year.

New method of top-grafting. A new and expeditious way of top-grafting apple trees has been experimented with by me the past season, which, I think, bids fair to become the most popular way of changing varieties of bearing trees, viz.: In the month of June or July, when the inside bark of the apple tree separates easily from the wood, make an incision with a round-pointed knife through the bark, some two or three inches long, at a point you wish to insert a graft of another variety; cross cut at the top and turn the corners back; select a scion of the longest growth from the tree you wish to propagate; strip off the leaves and cut it off square from four to six inches from the top. With a sharp knife bevel off the large end on one side, some two inches up, down to a point, and then insert the scion under the bark where slit, and crowd down until the bark presses the scion tightly to the wood and inner bark. It is claimed that ninety per cent of such so-called bark-grafting will grow without string or wax.

VICE-PRESIDENT'S REPORT, FOURTH CONG. DIST.

LE ROY CADY, ST. ANTHONY PARK.

The season of 1904 was rather cold, wet and generally backward for all horticultural work, but in spite of this fair crops were raised. Plums were a fine crop; apples are reported from 50 to 75 per cent of a crop in different parts of the district; raspberries were about 75 per cent of a crop, and strawberries about 50 per cent. Duchess, Wealthy and Patten's Greening are reported as having been the most profitable apples this season. Blight was troublesome in some parts of the district. Following is a list of other varieties of fruit that have been the most profitable of their class: Transcendent and Florence crabs, Wyant and De Soto plums, Splendid and Senator Dunlap strawberries, Loudon raspberry, Houghton gooseberry, Ancient Briton blackberry, Victoria and Fay's currants, Campbell's Early and Beta grapes.

Among the things that have been rather hard to contend with in fruit growing are the lack of labor and a profitable market for some fruits, especially raspberries and strawberries, in some parts of the district. With the exception of a few districts around St. Paul and Stillwater, fruit growing and vegetable growing is carried on in connection with general farm work. Taking the district as a whole, there seems to have been quite an increase in the growing of fruits and the planting of shrubs and ornamentals during the last few years. The growing of vegetables under glass, such as cucumbers, lettuce and radishes, especially near the cities, has increased noticeably in the past two or three years.

The following seem to have been the most satisfactory ornamentals to plant: the elm, hydrangea, spirea, lilac and peony.

Potato rot has been troublesome in this district, as well as in other parts of the state. I have received reports stating that from one-quarter to one-half of the potato crop has rotted. The rot seems to have affected the early potatoes more than the late.

There have been few troublesome insects this year; squash and potato beetles have been the principal ones.

The outlook for next season seems good at present, and, in fact, the farmers in general in this district seem to be taking considerable interest in horticultural work.

VICE-PRESIDENT'S REPORT, FIFTH CONG. DIST.

R. A. WRIGHT, EXCELSIOR.

The fruit crop in this district the past season as a whole has been very good. There have been some drawbacks, however, such as winter-killing, owing to the severity of the weather, and difficulty in harvesting and marketing the fruit, because of frequent rains.

Excelsior and vicinity produced about one-half crop of strawberries, the shortened crop being the result of root-killing the previous winter. A peculiar feature was shown in beds that were not covered producing as abundantly as those that were well covered. Raspberries yielded a good crop. Currants and gooseberries gave an average yield. Blackberries bore heavily and brought good prices. Grapes set well and promised a good yield, but on account of so much rain mildew set in, which ruined the Delawares, except in a few cases where spraying had been carefully and thoroughly done. Concords did some better, but were of an inferior quality, some of them not being harvested.

The apple crop was good, the Wealthy and Duchess taking the lead as usual. Crabs were very light, the past two seasons being unfavorable for them on account of the cool and wet weather. There was no blight this season to speak of.

The Gideon orchard produced over 3,000 bushels of apples this season, including the finest Wealthy I ever saw. Under Mr. Getchell's supervision the orchard is doing finely.

The winter of 1903 was severe on tender varieties, including the Ben Davis, which was nearly annihilated. Young trees on tender roots were badly injured.

Plums yielded heavily and were of good size and quality. The Surprise heads the list. Cherry trees are badly injured or killed, excepting the Compass, which came through all right and yielded fairly well.

The prospects for next season are good, excepting with the strawberry, which promises about two-thirds of a crop.

Long Lake and vicinity report strawberries a half crop; raspberries exceedingly good; currants and gooseberries an average yield. The apple crop was heavy, except in a few cases where they were injured by the hailstorm in blooming time. The fruit of some orchards was gnarly and imperfect for want of proper spraying. Plums were a good crop, being large, fine and of a good quality, and damaged very slightly by curculio. Cherry trees were mostly killed by the winter. Peach and pear trees, although well covered, were killed. Many young orchards were badly injured.

The Marlboro raspberry still stands at the head as a money maker, the King, Minnetonka, Ironclad and Shipper's Pride following. The Loudon is being discarded. The Ironclad and Shipper's Pride stood the past winter without any protection and produced a big crop. Prospect for another season's crop are good.

Rockford and Maple Plaine reports: We had another favorable season; raspberries exceedingly good. The Older black cap and the red varieties known as the Superlative and Shipper's Pride came through the winter without any protection and produced heavily. Strawberry beds winter-killed badly, reducing the yield nearly one-half. Currants and gooseberries bore about two-thirds of a crop. Plums did well excepting early varieties, which went to plum pocket. The Surprise leads them all. The apple crop was very uneven, some trees bearing heavily, while others produced very little. Size and quality were very good, the Wealthy and Duchess heading the list. Crabs were light, not over one-third of a crop.

R. A. Wright, Excelsior.

Cherries were nearly a failure and trees badly winter-killed, except the Compass, which did well. Prospects for next season are very good, except with the strawberry crop, which will be shortened on account of poor condition of the beds

Bloomington and vicinity report strawberries as having suffered to some extent from winter-killing, but they partly recovered, because of the abundant rain, and yielded a fair crop.

Warfield, Bederwood and Splendid are doing best. Gooseberries and currants very light.

The tender varieties of apples, including Ben Davis and Northwestern Greening, were badly injured by the severe winter. The Wealthy, Duchess, Hibernal and Peerless bore good crops. Plums were very good, but rotted to some extent. The prospects for next season's crop are good.

Eden Prairie reports a large apple crop, the Wealthy being the heaviest yielder. Very little blight and mildew manifested itself this year. All pear trees were killed to the ground, except Besamianka, which came through the winter without injury.

Plums generally were a fair crop, the De Soto being the best. Many of the Domestica were killed last winter. The Chickasaw were about as hardy as the Americana. Many varieties of cherries were injured or killed. Some varieties of shrubs supposed to be hardy were killed by the severe weather. The Japan walnut seems to be hardy. The black walnut may be relied upon as a useful and ornamental tree. From one tree seven bushels of walnuts were gathered. The shellbark hickory, although slow growing, is always satisfactory. The buckeye, or horse-chestnut, is one of the hardy trees to be relied upon.

Mr. Merritt: You say your cherry trees were winter-killed; did you notice the year before anything like a yellow leaf, the leaf turning yellow and falling off early in the season? That is the way my orchard commenced to kill out, the leaves turning yellow early in the season and falling off.

Mr. Wright: I am not a cherry grower myself, I have only two trees, and the information regarding cherries I gave in my paper I gleaned from neighbors. I am not a large fruit grower in the apple line. I gained my information from other fruit growers and can therefore not answer that question myself.

Mr. Williams: In looking over your neighbors' orchards did you find any that were planted on sandy soil?

Mr. Wright: No, I do not know that I did. We have no sandy soil in our locality, and I did not ask the question with reference to that point.

Mr. Williams: I would like to ask whether there is any horticulturist here who has had experience in planting apple trees on sandy soil?

Mr. S. D. Richardson: At Madelia there is an apple orchard planted on sandy soil that is very fine.

VICE-PRESIDENT'S REPORT, SIXTH CONG. DIST.

W. L. TAYLOR, HOWARD LAKE.

The season of 1904 will be known as the wet season. Strawberry plants were injured by the cold winter, but those that survived promised a large crop. Just as the first picking was on there came a hailstorm that spoiled all the ripe berries and stripped off part of the leaves from the fruit trees to such an extent that our apples were not only under size but badly specked with hail. As a consequence we had no fruit to send to the fairs or bring to this meeting. Notwithstanding the hail we had quite a crop of medium sized berries, mostly Bederwood, Warfield and Crescent. The Dunlap did nicely, and we will plant more of them next year.

The Wealthy still holds its own; one of our neighbors had about 125 bushels on his town lot. The Northwestern Greenings that bore so many apples last year mostly died this summer, so we concluded that the young trees ought not to be allowed to overbear. This applies to other varieties as well. Okabena did well again this year, and while this may not prove to be the best apple on earth I think it is a good tree to have in every orchard. At the different fairs that I visited I saw greater displays of apples than ever before brought in by farmers. At the Hutchinson fair a new addition was made to the hall for the display of fruit only, and it was supposed to be large enough for many years to come, but it was soon filled, and more space had to be found for fruit. Here was shown the influence of our beloved Pendergast, and I thought that "He being dead yet speaketh," and I could not rest until his photograph adorned the hall above the fruit display from his old orchard. At the Howard Lake, Cokato and Dassel fairs more than twice the amount of space was taken in the display of apples than ever before. Varieties shown, were: Wealthy, Duchess, Hibernal, Charlamof, Anisim, Red Anis, Peerless, Patten's Greening, Northwest-

Col. Jorgenson and partial view of fruit exhibit at McLeod County fair, 1904.

ern Greening, Okabena, Baxter, Iowa Beauty, Gilbert, Repka Malenka, Malinda, McMahon's White, Kaump, Lyman's Prolific, Hyslop, Transcendent, Strawberry, Whitney, Minnesota and seedlings.

Plums shown: Surprise, Wolf, Cheney, De Soto, Freestone, Rollingstone, Weaver and others.

Nuts: Black walnut and butternut.

Raspberries: Loudon, Marlboro, Seattle, Nemaha, Older and Palmer.

Anton Wilwerding, fruit grower at Freeport, Stearns Co., and Early Strawberry tree in blossom on his place.

In regard to the question asked in reference to growing apple trees on sandy soil, I know of one orchard on sandy soil. There is an orchard at Litchfield on sandy soil, although the younger trees used to root-kill, but the older trees appear to be right at home and bear an abundant crop. The Hibernal on that soil does very well, but the trees on the low ground do much better than those on high ground.

Now in regard to planting trees, some favor planting them as Capt. Reed does, and some a great deal further apart than we have been planting them. On timber soil it is a good plan to plant the standard trees far apart, but on the prairie where we have those terrific winds we must plant them close together because so many kill out; planted close together one tree is a protection to the other. For that reason I have planted them from twelve to sixteen feet apart. I find this a very good plan when the trees are young. Of course, they are crowded, but we reason in this way. we get so many apples when planting close together, so that it pays to plant the trees in an orchard close together and harvest the crop when the trees are small, and then let them take care of themselves when older. I remember last year my young Northwestern Greening had a very heavy crop of apples, but most of them are dead this year. I want to throw out a word of caution in that respect. As soon as a little apple tree will bear it is usual to let it have all the apples that will ripen. I have seen little apple trees so loaded with fruit that they were propped up. This is wrong; the apples should all be picked off except a few that might possibly be left as a sample of the fruit. I set an orchard of nearly 500 trees for a man, and he picked nearly 50 bushels of apples from those young trees, some of them bearing as much as half a bushel. The result will be that his trees will all be dead next spring. I consider this a point to which we all ought to pay more attention, and if we do I do not think we shall have so much trouble with our young apple trees killing out.

Mr. Emil Sahler: What varieties?

Mr. Taylor: Patten's Greening, Hibernal and Wealthy. There is one point I want to bring out in regard to the Hibernal and Wealthy. When I began in the nursery business I supposed the scions should be cut from bearing trees, and I had to cut from a good many trees, because a bearing tree does not yield many scions, but I got all I could from good bearing trees. I found from those scions I could produce young trees that bore heavy crops of apples, and I recommended people to get their scions from good bearing trees.

There is one thing I want to call your attention to, and that is the so-called "strawberry-raspberry." It has been sold all over Wright county and has become a nuisance almost as bad as the Canada thistle. It is necessary to put on buckskin mittens to pick the berries, and they are not fit to eat after they are picked. Everybody that has it would like to get rid of it.

Mr. Yahnke: What do you line your mouth with when you eat them? (Laughter.)

Mr. Taylor: We roll them in sawdust before we swallow them, otherwise we cannot get the taste out of the mouth. (Laughter.)

The President: The Wealthy is inclined to overbear, and if you take scions from such a tree I should think the young tree would overbear.

Mr. Taylor: I did not know any better than to get my scions from the best bearing trees, and they overbear.

Mr. Van Ness: I shook off a good many, and I found the apples were larger and the tree would do better later on. I have an apple that overbears, it is called the Thompson's Seedling. It had over a bushel of apples on; the leaves hang on very late, and I fear for that tree. I fear the tree will not ripen. I think we ought not to let too much fruit hang on.

The President: That is one difficulty in getting a long keeping apple. It is very likely that such a tree will not mature.

Mr. C. E. Older: It is generally conceded that it does not take much vitality to produce an apple until it comes to ripening the seed. In the Alderman orchard it was the practice to begin picking the apples, Duchess and Wealthy, as soon as they were big enough so they could dispose of them in the market, and they thought they had just as many bushels of larger apples as though they had left all of them on the trees, but with the smaller amount of apples the tree did not need so much vitality to ripen the seeds.

Mr. J. C. Hawkins: I want to say a word to emphasize the point made in regard to the overbearing of the Patten's Greening. I find of all the varieties we are raising in Mower county the Patten's Greening is most inclined to overload when it is young. I know of several orchards in our county in which the trees almost entirely went out after the first crop of fruit, they being so overloaded that they broke down. That point has been brought up as one of the objections to the Northwestern Greening. I think the trouble is all with the orchardist. The trees should be stripped of their fruit.

VICE-PRESIDENT'S REPORT, SEVENTH CONG. DIST.

D. W. WHEATON, MORRIS.

Time and the expense do not allow a personal inspection of but a small part of such a large territory as is embraced in this district. Most of the information must necessarily be gained by correspondence. It is not an easy matter to reach some who could give needed information. However, I succeeded in reaching some from the different parts of the district, and I wish to thank these gentlemen who so promptly answered my questions.

In the diversity of the reports received, it is not easy to know what to report. Notwithstanding the long continued cold of last winter, reports state that there was but little injury done. Trees and plants came out in the spring in good shape and made a good growth this year. Low temperature is not the great thing to be feared. Too much moisture is as bad as too little, both of which can be largely overcome. Most of the losses are from other causes. Most of the so-called tender plants and trees stand the cold better than they stand neglect. Some of the trees purchased are dead or nearly so before being set out, and many that are set out without being trimmed in root or branch and then crowded into small holes are left to grow if they can. Is it any wonder that so few trees grow or soon die and men say that it does not pay to raise apples, and that apples will not grow for the ordinary man?

The fruit crop was fair on the whole. Apples were not an average crop and a very uneven one—some trees being heavily loaded, while many had but a light crop. Some trees that have been annual bearers almost failed this year. The crop was late, owing to the cold and moist season and fruit was not up to the usual size.

Reports from the Duchess, Wealthy, Patten's Greening and Hibernal were almost without exception favorable. There is no risk in planting any of these trees with fair surroundings. Most of the other varieties have not been tried as long or as extensively. Reports are favorable as to the Longfield, Antonovka, Peerless, University, Malinda, Charlamof, Okabena and other varieties. The great trouble with most of the Russian varieties is blight and not being long keepers.

Blight is the great trouble to be contended with, and with no known remedy except cutting of the blighted limbs. The best thing to suggest is to plant only those varieties that are not subject to blight and to discard blighting varieties.

Some have become discouraged in planting grafted trees and state most emphatically that the seedling is the only hope, and they base their assertions upon their own experience. I think there is something in it, but cannot fully agree with them, as my experience does not quite agree with theirs, having lost a good many seedlings by blight.

Of the crabs, the Martha continues to be a non-productive tree, although a fine, hardy tree, but of no use as a fruit bearing tree. The keeping of the Martha on the fruit list of the society for so long did not improve the recommendations of our society.

The Florence, Minnesota, Virginia and Early Strawberry are reported as proving to be good trees to plant. I think the society should go very slow in placing new names on the fruit list.

The plum crop was good. The curculio was not much in evidence. There is little to fear from planting any of the varieties recommended. Wild plums are too plentiful for many to care to plant the cultivated varieties.

Of strawberries there was a bountiful crop. One man writes that he raised 1,000 quarts. But few are raised for market. The Bederwood, Senator Dunlap, Enhance, Splendid, Warfield, Crescent and other varieties all seem to do well, almost everywhere, and it is hard to tell which does the best. More seems to depend upon soil and care than upon variety, as is true of most crops. There is no good reason why almost everybody should not grow enough strawberries for their own use.

There was a good crop of raspberries. The Turner and the Loudon are the kinds generally grown. One writes that he raised 1,000 quarts of the Shipper's Pride.

I cannot advise the growing of blackberries or dewberries or any of the novelties that are so much boomed by some nurserymen.

Currants should be in every garden, and with little care they produce an annual crop. Almost any of the varieties will do well. The Red Dutch and White Grape are good, but some of the newer varieties seem to do just as well or better.

To try cherries is much of an experiment, and few cherries are likely to be raised. I know of a man who has good success, but most trials result in failure. Do not expect very much of the Compass cherry.

One writes that there will be no great advance in apple raising as long as unscrupulous agents sell apple trees not grown in Minnesota for Minnesota grown trees, and he thinks he would be willing to pay a dollar an apple for all the apples grown on $1800 worth of trees sold in his own town the past year. Many will not patronize their home nursery but will buy of a high priced agent trees of a doubtful value.

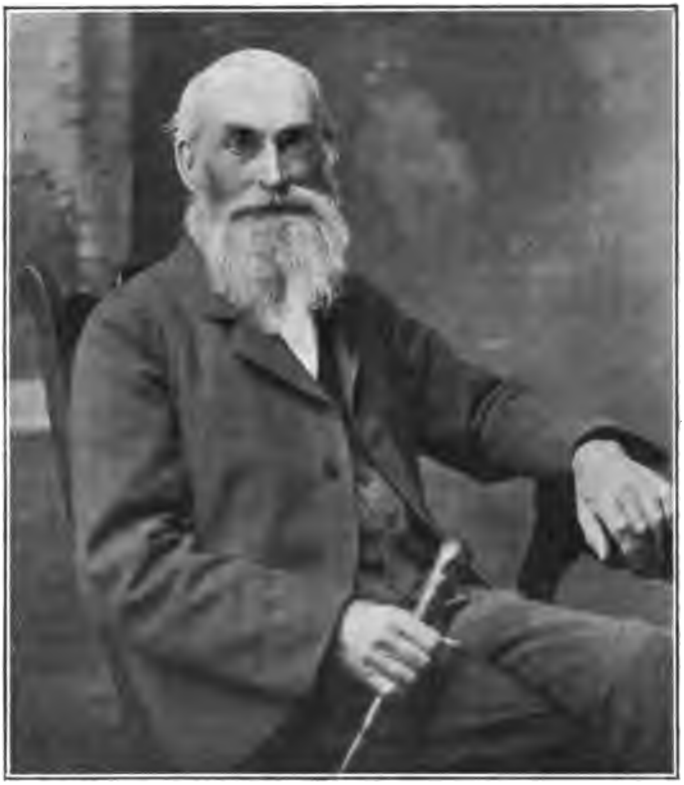
Many trees are being sold and doubtless some will live and reward the buyer.

VICE-PRESIDENT'S REPORT, EIGHTH CONG. DIST.

R. H. PENDERGAST, DULUTH.

In order to get as full information as I could from all parts of the district as to the condition of fruit trees and bushes after last winter, to know if the severe weather had injured them much; and if trees set the spring before were hurt more than those that had been set longer; and which varieties were injured the least; as well as to get at the amount of fruit grown this season, and the varieties that had done the best—I made a list of questions. As I did not know if all of the counties had agricultural societies, I wrote to postmasters enclosing the list of questions and envelope with stamp, and asked them if they had a county society to hand the enclosed to the secretary; if not, I asked them to answer the questions if they could or to hand the list to some one who would answer them.

The postmaster at Aitkin handed the list to Chas. N. Howe, president of the Aitkin Agricultural Society. I received a letter from him saying that fruit trees set in the spring before were hurt more than those that had been set longer, though some trees that had been set ten years were injured some, with mercury down to 52° below zero. Peerless, Duchess, Brad's No. 2, Itasca and Patten's Greening came through all right; Okabena, Wealthy and Northwestern Greening killed back very bad; crab apples, Virginia, Whitney No. 20, Strawberry and Meader's Red Winter, O. K. Other varieties suffered some. All plums did well. The Aitkin, a native here, bore very heavily this season. No cherries of any account here. Raspberries: The Cuthbert is hardy and the bushes were well loaded with fine fruit. Strawberries: The Bederwood and



R. H. Pendergast, Duluth. One of Minnesota's veteran horticulturists.

Crescent seedling did splendidly. We had a good crop of fruit on strawberries, raspberries, currants and gooseberries. One man sold $325 worth of apples from a small orchard, and another one about the same amount. No blight here last year.

One postmaster handed the list to an agent who was selling trees there. The agent wrote to me that he would send me an order list with the varieties marked that they recommended for Minnesota. I did not get much information from this that would be of use to me in making out my report.

One returned the list of questions with a few lines on the back of the sheet saying that he did not know whom to refer me to, unless it would be some farmer, but he did not send me any name. The others did not take trouble to answer.

It will take a good deal of talking and writing to get the people generally of the northern part of the state to take interest enough in the fruit question to inform themselves as to what is being done in this section of the state.

At Grand Rapids, Itasca Co., I found that the fruit trees set out the year before were many of them killed, though older apple and plum trees were not injured much, and they were mostly well loaded with fruit. I saw some plum trees that the branches were so heavy with plums that they were propped up to keep them from breaking. I told the parties that they should have thinned the fruit, and the balance would have been much larger and finer, and it would not have exhausted the tree so much. There was a fine crop of small fruit, especially of strawberries. The gardeners there are beginning to set out more small fruit. I was told that one man sold about $1,200 worth of strawberries this season.

In St. Louis county the older apple and plum trees were not injured, and where they were well taken care of they gave generous returns. Cherry trees were hurt a good deal, some killed. Many of the small trees were killed, others injured. I set out a year ago last spring a few trees in the garden, two Wealthy, two Duchess, two Tetofsky, two Whitney, one Cheney plum, one Forest Garden plum, one Early Richmond cherry and one Ostheim cherry. Last spring I found the Duchess and one Whitney apple alive, the others dead. Both cherries were dead. Plums leaved out but died in the summer. I usually wrap the fruit trees, also ornamental trees and shrubs, the first winter after they are set out; but last fall I was away until late and neglected to do it. Fine crop of small fruit of all kinds. Some of you had a chance to see and sample some of the strawberries raised here at the exposition at St. Louis last summer.

The early settlers in the northern part of the state thought they were so far north that it was useless to think of having much fruit. A few of them did set out some currants. I found it difficult to persuade them to set out a few trees, and those would be mostly Transcendent and Hyslop crabs.

Some of the business men in Duluth did set out apples, plums and cherries in their gardens, and they are mostly fine, healthy trees, and they have been furnishing fruit for thirty years. They stand as guide posts for the new settlers, showing them that they can have fruit, and they are now setting out more trees.

As I have said before, I consider the northern part of the state is well adapted to raising such varieties of fruit as will grow in the state. It is mostly a timber country. We have usually plenty of snow to protect the trees and keep the ground from freezing hard. We have moisture, and owing to the cool summers we have very little trouble from blight. Transcendent crabs set out when Duluth was first settled are fine, healthy trees. Fruit matures slowly and is of fine flavor. This is very noticeable with small fruits, and the later ripening will give gardeners a great advantage, as their berries will not be ready for the market till after the season is over below, and they will get better prices. And the snow makes a fine covering for the strawberry plant.

Duluth Strawberries on fruit place of A. McComber, Duluth.

In conclusion, I wish to refer to last winter and the effect it had on fruit trees at Duluth, and also at Bayfield, on the South Shore. We had a long, cold winter. But we have had several when the cold spell lasted as long, and it was colder. But last winter injured trees that were not hurt in those years. Cherry trees that were set out in Duluth in the early days went through those years all right, while the same varieties of fruit were killed last winter. And at Bayfield, where they have raised cherries for fifty years or more, bearing trees were killed last winter.

Secretary's Corner.

WISCONSIN STATE HORTICULTURAL SOCIETY.—The annual meeting of this society is to be held at Madison, as usual, on Feb. 7th to 10th.

HAVE YOU SENT IN A NEW MEMBER?—Please give this early attention and secure for yourself some of the valuable premium books offered in our 1905 folder.

SHALL WE REACH 2000 THIS YEAR?—The answer to this question depends upon you If each member interested in the work of the society should send in one new member, we could easily pass this mark. Taking it for granted that all members are interested in the growth of the society. we should reach this number.

CONSTANCE HORTICULTURAL CLUB.—A local horticultural society under this name, situated some seven miles from Anoka, now in its third or fourth year, this year sends in a membership of thirty. The club meets every two weeks during the winter and is enjoying a degree of practical prosperity.

HAVE YOU RENEWED YOUR MEMBERSHIP FOR 1905?—A few of the 1904 members whom we are sure intend to have their names continued upon the roll have not renewed their membership as yet for 1905. They should give this matter early attention and at the same time send in the name of some acquaintance who ought also to be engaged with us in this work.

REPORT OF NATIONAL FORESTRY CONGRESS.—It was the intention to publish in this issue the report of this national gathering, by Prof. Samuel B. Green, who was present there as our delegate, and the copy came to hand in season, but other material planned for this number has fully occupied the space, and it has had to be left over until the March number.

ANNUAL MEETING SOUTH DAKOTA STATE HORTICULTURAL SOCIETY.—The annual session of this society was held at Huron, S. D., Jan. 17th to 19th. Mr. J. L. Teigland, of Minneota, represented this society on that occasion. His report of the meeting will appear in the March number.

MINNESOTA FRUIT EXHIBIT, WORLD'S FAIR.—The final report of this exhibit appears in this number, with a list of awards, a statement of the exhibit as made from day to day and the last installment of contributions. This closes officially the connection of the secretary with this interesting and in the main successful exhibit.

RED RIVER VALLEY HORTICULTURAL SOCIETY.—Don't forget the annual meeting of this association, to be held in Crookston, Feb. 2. No particulars as to the program are yet at hand, but as the meeting is to be held in conjunction with other associations, agricultural, live stock and the farmer's institute, a good attendance is assured. If you live in that neighborhood you better be there.

SOUTHERN MINNESOTA SOCIETY MEETING.—This meeting was held, as announced, the 11-13 of Jan., at Spring Valley, and the report of the meeting came to hand duly but has been crowded out of this number by other pre-arranged matter. It will be found in the March issue. On account of unfavorable weather, the attendance was not what could have been desired, but in other respects the meeting was a successful one.

FARMERS' INSTITUTES.—Two farmer's institutes have been in operation in our state this month, the southern corps under the charge of Mr. A. W. Trow, with Frank Yahnke as lecturer on horticulture, the northern corps in charge of Mr, T. A. Hoverstad, with Mr. Wm. A. Buggs as horticultural lecturer. Good reports are received from both of these institutes. The people show great interest in horticultural subjects, and fifty-three names so far (Jan. 21st) have been added to the roll of the horticultural society through these agencies.

AGRICULTURE AND HORTICULTURE AT THE STATE FAIR, IN 1905.—Mr. J. M. Underwood, has at his request been relieved from the position of superintendent of police at the state fair, which he has filled with conspicuous success for a number of years, and is this year to have entire charge of Agricultural Hall with all its departments, including agriculture, horticulture and honey. A complete rearrangement of the building is proposed, and something original and of special interest may be expected.

THE ANNUAL REPORT, STATE ENTOMOLOGIST FOR 1904.—The annual report of Prof. F. L. Washburn, state entomologist, is at hand. This volume of 200 pages is devoted almost entirely to injurious insects of 1904. Special attention is paid to methods of spraying intended to keep them in check or destroy them, to nursery inspection, etc. A good many pages are devoted to home birds and animals. It is a very practical and interesting book. If you have not yet secured a copy you can get one for the asking by applying to Prof. Washburn, St. Anthony Park.

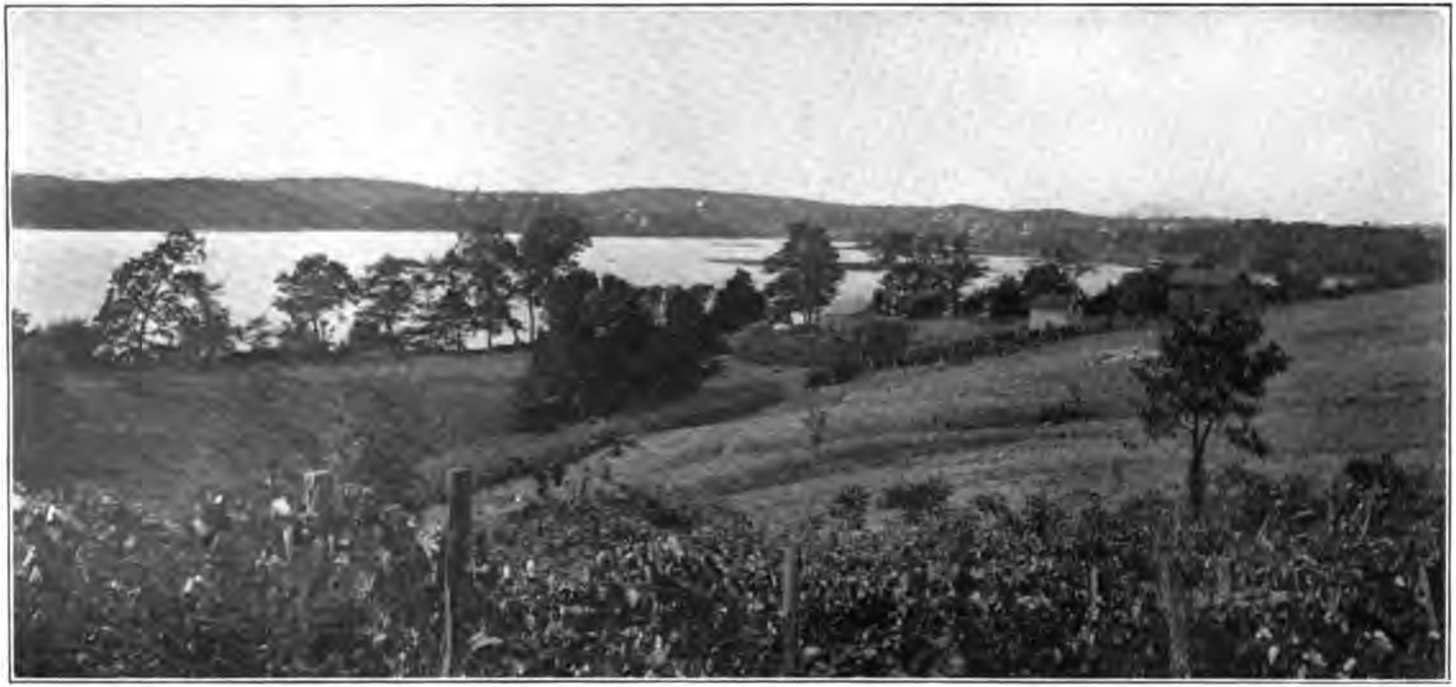
NEW LIFE MEMBERS.—The following names have been added to the life membership roll since the beginning of this year: William Peet, Minneapolis; J. L. Teigland, Minneapolis; Forest Henry, Dover; H. G. Westman, Sandstone; F. J. Pracna, Minneapolis; Asa G. Briggs, St. Paul; L. Johannessohn, Beltrami. One of these members, Mr. Forest Henry, was made an honorary life member at the late annual meeting, in recognition of his valuable services to the society in connection with farmer's institute work. There is still room for more on this roll, and we hope to see it largely increased before the close of the year.

PROF. GREEN AT LINCOLN, NEB.—Prof. Samuel B. Green delivered an address before the gathering at Lincoln of the "allied associations" that meet at that time (to an audience of 1000 persons) on the general subject of agricultural education, one which is attracting a great deal of attention at the present time. How shall the sons and daughters of the farm be educated to make their home life and work sufficiently attractive to keep them there? Prof. Green is contributing his part towards this most desirable result. He attended while there several sessions of the annual meeting of the Nebraska Horticultural Society and will report on this meeting in our next issue.

NORTH DAKOTA STATE HORTICULTURAL SOCIETY, ANNUAL MEETING.—This meeting was held as announced on Friday, Jan. 20th. Mr. A. J. Philips of Wisconsin was there as a speaker on the program. He dropped into this office on his way home, and from him we learn that there were three speakers on horticultural subjects occupied the forenoon session of that day, himself, Mr. E. A. Smith, of Lake City, our delegate, and Prof. Robertson, another of our members. A report of this meeting will undoubtedly be published in the March number.

LIST OF THOSE SENDING NEW MEMBERS up to Jan. 21st:

E B. Loye, 1; Wyman Elliot, 1; C. J. Wieberg, 1; Frank M. Bigelow, 2; E. A. Farmer, 2; L. B. Arnold, 1; A. K. Bush, 1; C. A. Mattson, 2; F. F. Marshall, 1; L. Johannessohn, 2; J. V. Wichler, 1; T. T. Bacheller, 5; A. H. Enerson, 2; Otto Kankel, 6; W. H. Harris, 1; John Bisbee, 5; Fred Mohl, 1; T. E. Cashman, 6; Wm. B. Gerth, 3; J. W. Ramsden, 1; C. W. Merritt, 1; Nils Anderson, 1; Louis Larson, 1; C. J. Orton, 1; Jewell Nursery Co., 2; V. A. Neil, 2; W. E. Mills, 1; J. P. Andrews, 4; M. J. Daily, 1; W. L. Taylor, 1; Leonhard Fritze, 1; W. H. Eddy, 1; E. A. Bishop, 1; S. D. Richardson, 5; F. O. Hacke, 2; F. I. Harris, 1; G. Looker, 1; H. L. F. Witte, 1; G. E. Richardson, 3; Wm. A. Buggs, (Farmers' Institute) 30; A. B. Lyman, 2; Fr. Yahnke, (Farmers' Institute) 24; H. Klauser, 2; Jacob Webb, 1; F. H. Ellison, 1; Leslie Page, 1; A. Brackett, 1.



VIEW ACROSS ST. ALBANS BAY, LAKE MINNETONKA—VILLAGE OF EXCELSIOR IN THE DISTANCE.
From a photograph taken from the residence of Mrs. Isabella Barton.

THE MINNESOTA HORTICULTURIST.

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Spring Calendar.

THE APPLE ORCHARD IN MARCH AND APRIL.

GEO. W. STRAND, TAYLOR'S FALLS.

In all sections of the country we find examples of profitable orchards where clean culture, pasturage by sheep and hogs and sod bound trees have their respective champions. Where the soil is fertile and retentive, and the orchards are favorably located, the trees do well under all these conditions, but where there is danger from lack of moisture the cultivated orchard, without question, is the one to rely on, and the conservation of moisture should be started as early in the season as the ground is in good condition to work.

Young orchards should be cultivated for several years before seeding down, and then should not remain in sod long at a time. Where this practice is followed their feeding roots are deep and there is little danger of damaging the trees in plowing.

Most soils require but little added fertility for orchard purposes until the trees come to a bearing age. After that the fertility should be kept up as well as possible to insure good growth as well as crops. Late in the fall is the best time to apply this dressing, but any time during the winter answers very well if it cannot be attended to before.

Pruning can be done to good advantage before the sap starts, during the milder days of March. Where any large limbs must be removed it is well to cover wounds with wax or white lead. It is not advisable to prune apples much in the northwest, merely removing interfering or diseased growth. An occasional light pruning or pinching back can be done at any time, thus avoiding heavy pruning.

Mice often damage many unprotected trees during the winter, especially where there is rubbish or grass for them to harbor in and when the snow lies very deep. They seem severest in their havoc during early spring or late winter. Tramping about the trunks of the trees will aid in saving many, and places that are noticed where they are working should be baited at once. This can be done by placing a mixture of corn meal, arsenic and sugar in a can, covering it with hay or rubbish. The mice congregate in such places very quickly, and by moving the cans and piles about the orchard can soon be cleaned of most of the mice. Another remedy was given in the last issue of the Horticulturist that appears very practical. That is, "make a poisonous solution of one part of sulphate of strychnine, one-third of one part of borax, one part of white syrup and ten parts water. Put this in a roomy bottle and shake well. Cut fresh twigs from apple trees and after painting with the solution scatter them in runways or places infested. The great value of this over poisoned grain is that it will kill rabbits and mice and not injure birds or chickens." When trees have been badly girdled by mice the wound should be waxed or painted over at once so as to prevent decay and weathering out. If it is near the ground

Mr. Geo. W. Strand, Taylor's Falls, Minn.

so it can be banked with earth it should be done. Trees that have been badly girdled will not last long but usually well repay for the best of attention, and springing in several scions so as to connect the barks will do much to increase the tree's usefulness.

Top-Working. It is quite a nuisance in a commercial orchard to have a few trees of many varieties, and the progressive owner may have found something better that he desires to give a trial without increasing the total number of trees—so he top-works many of these undesirable varieties. If one desires a few apples of many kinds for exhibition purposes or otherwise, it is far better to keep a few trees in the orchard for top-working purposes—growing many varieties on the same tree. These trees will prove very interesting to both the owner and observer, and where they receive good care fully as good or finer specimens will be produced. Trees of great vigor and hardiness, such as the Virginia crab and Hibernal, are recognized as the best of stocks for such purposes. The union made is very perfect, and the original crotch is very strong, not liable to break down or sunscald. The best results, I believe, are attained when the stock and scion are about of a size, making a whip graft about a foot from the trunk. Apple grafts unite quite readily if the work is carefully done before the buds burst open. When large limbs or stocks are to be grafted the cleft or wedge graft is most commonly used. A good grafting wax can be made of resin four parts, beeswax one part and tallow one part.. If a small oil stove is taken along to heat the wax when necessary, it can be applied very nicely while warm. After painting the graft thoroughly the first time, it should be wrapped with cotton cloth that will tear easily and then thoroughly waxed again. When waxed in this manner they are much surer to grow than if given only one coat of wax, and they are not liable to be broken off or disturbed.

By the time the March winds are whistling the approach of spring, the plans for any prospective orchard planting should be completed and trees ordered, so as to insure early delivery and good stock. It is not the purpose of this paper to go into detail as to the relative merits of varieties; however, in the selection and purchase of trees it will always be found more satisfactory to adhere to recognized standards and such as local experience recommends.

THE PLUM AND CHERRY ORCHARD DURING MARCH AND APRIL.

DEWAIN COOK, JEFFERS.

This article will be devoted mostly to the plum orchard, as the writer knows but little about the cherry except that most varieties which we have tried have failed to produce fruit in paying quantities.

The trees in most of our plum orchards have been planted too near together, and must have a freer circulation of air for the health of the orchard and more sunlight for the perfection of the fruit.

The person who grows plums after what he might call "nature's way," that is, the thicket form with, perhaps, forest trees growing near by that shade the plum trees and sap the ground about them, must be content to gather only nature's fruit, that is, wild fruit. The fine, large fruit that will satisfy the housewife of the present day and finds a ready sale upon our markets is largely the product of civilization. We must cultivate, we must prune, we must manure and mulch, and also fight insects and fungous diseases.

Along the latter part of March or the fore part of April, we start in to prune; if the orchard is young we use a heavy pruning knife, but if the orchard has been in bearing for several seasons we use a light, short handled, sharp ax. Branches that are inclined to assume a horizontal position are the first ones taken out, because they are usually more or less in the way when working among the trees. Where we find two branches crossing each other to their mutual injury, one of them is taken out. Then we go on the inside of the top, cutting out all weak and partly dead branches, preferring one strong limb to two or three weak ones. Now if the pruning has previously been somewhat neglected there will still be left a large number of dead spores on the lower part of the large branches. To take these off with the pruning knife is a tedious job, but they are quickly taken off with the short handled ax. This completes the pruning.

We always carry a sharp jack knife when in the orchard, and when we seen signs of borers working in the trees we use the knife and out come the borers. March and April are as good months as any to do this work in.

It is also a good time to haul stable manure and mulch the orchard, putting on enough to kill any sod that may be formed, but no more, as there is some danger in mulching heavily at this time, for if the roots of the trees are encased in ice at the time they are in bloom the result is pretty certain to be the loss of that season's ɔp.

A few words more about the plum borer. If we find a tree badly infested with them it is of but little use to attempt to dig them out; better chop the tree down and graft a root sprout for a new tree.

If the weather is quite warm during the latter part of April the tent caterpillar larvae begin to hatch out and immediately go to work spinning their tent. This is the best time to get after them, as the shiny webs can be seen a long distance, since the trees at this time are bare of foliage.

I suppose that something might be said here about the plum gouger and the curculio, but I have had no actual experience combatting them until after the blossoms have fallen, and this always takes us here until some time in May.

Mr. W. L. Taylor: What three plums would you recommend for a commercial orchard?

Mr. Dewain Cook: For commercial purposes I would take the freestone Wolf first, for the second either the Hawkeye or the Stoddard—they are nearly alike—and the third—I don't know. (Laughter). I am just speaking of the matter as far as profits go in growing them.

Mr. A. Brackett: Have you had any experience with the Surprise?

Mr. Cook: Yes, but not enough to pass an opinion upon it.

Mr. C. F. Gardner (Iowa): What was the first one he named?

Mr. Cook: The freestone Wolf. There are two, the large clingstone Wolf and the freestone Wolf.

Prof. Green: In regard to the differentiation between the large freestone Wolf and the clingstone Wolf—is it a distinct variety?

The President: I would like to have the difference explained. I want to ask a question to start with. The Wolf is the most distinct of any of our native varieties of plums; will you tell us exactly the difference between the two?

Mr. Cook: The clingstone Wolf is a stronger grower, the fruit is larger, and it is sweeter and generally of a lighter color; it will sell in the market a little better than the freestone, but I recommended the freestone on account of its growing quality and its fine color. It is a dark red before it is ripe and has a very small pit. It is not the best for home use with me.

Prof. Green: Don't people like it on account of that small pit?

Mr. Cook: I don't know that they pay any attention to that.

Mr. Geo. W. Strand: I did not say anything about spraying because that is done in May, but I think it is necessary to spray in Minnesota, although not so much so, perhaps, as in some eastern states.

Prof. S. B. Green: Mr. Strand refers to spraying as being something that ought to come later in the season. There is one place where I think spraying ought to be done in the spring of the year, and that is in the case of plums where they are badly troubled with plum pocket. I think it has been quite clearly demonstrated in a small way that spraying with a thick Bordeaux mixture, spraying the twigs of the plum trees at least two weeks before the buds start into growth, and covering them well, will prevent plum pocket. That remedy has been shown to completely control the curl in the peach leaf, which is the same disease in a little different form. Prof. Pierce, who has done more in that line than anybody else, told me five years ago that he wanted a chance to experiment with plum pocket, and he believed he would succeed. This year there have been a number of experiments made and every one in an orchard that was badly infested with the pocket and in a number of cases where the treatment was carefully carried out the result has been very successful.

Mr. E. R. Pond: I would like to get the formula for that Bordeaux mixture?

Prof. Green: It is just the same as the ordinary formula, instead that you use only half the quantity; that is, instead of 5-5-50 you make it 5-5-25. I would like to see that well recommended throughout the state. I believe it is well worth a thorough trial.

Mr. C. E. Older: I tried it last year with great success. Plum pocket bothered us a great deal the year before, and Prof. Washburn recommended that we give it a thorough wash, which we did, and we had no plum pocket.

Mr. W. L. Taylor: I would like to ask Prof. Green what kind of spray pump he considers the most satisfactory?

Prof. Green: I do not know myself. There are quite a number of them. I do not care to get up here and recommend any special brand. The best makes of spray pumps are those in which the working parts are made of brass, those parts that come in contact with the Bordeaux mixture, and with a good nozzle, a Vermorel nozzle, you get good results. You should have the buds well covered with the mixture:

Mr. Carbine (Ore.): I would like to ask a question in regard to top-working the trees. I read an article in a Missouri horticultural paper in which some one recommended setting scions all over the small limbs—some trees have over one hundred buds on each tree. I would like to ask whether anybody has had experience in that direction and whether it was successful.

The President: The gentleman would like to know whether anybody has had good success in top-working an apple tree all over the tree.

Mr. Dewain Cook: I have had a little experience and a large tree will carry it all right, but when you graft on a little tree there is not vigor enough to carry it through. It will do very well on the outside limbs, but on the weak inside limbs I do not think it is advisable. Those grafts were dwarfed and were practically worthless.

THE SMALL FRUIT GARDEN IN MARCH AND APRIL.

R. A. WRIGHT, EXCELSIOR.

When this topic was assigned me there seemed very little to be said about it, but after more carefully considering the subject I found that the early spring was the time to lay the foundation for a good and generous supply of fruit for the table in summer, fall and winter. Considerable thought is necessary for the careful planning for and selecting plants and varieties of fruit that will prolong the fruiting season, thereby supplying the table with fresh fruit for the longest possible time. It is not a question of how many varieties we have that fruit at the same time, but that each variety be selected with reference to its being early, medium or late, thus keeping a continual supply for weeks.

We need to become acquainted with some good, reliable nurserymen or fruit growers who can be depended upon to furnish good plants, and the nearer home we can find them the better.

Since strawberries fruit first and are acknowledged to be the best berry, we will begin with them. Four varieties, that I might mention here, are considered standards, each having its separate fruiting season, one succeeding another according to the following list: Johnson's Early, Splendid, Enhance and Parker Earle. This collection will provide fresh strawberries for the table from your own garden for about six weeks.

For red raspberries we would mention the King and Miller; blackcaps, Nonesuch and Nemaha. The Snyder and Ancient Briton blackberries are very satisfactory.

North Star currant and Downing gooseberry will do.

Having made our selection of plants and ordered them delivered about April 10th, we will turn our attention to the plat of ground where we intend to plant them. Let this be wisely chosen and conveniently near the house. The soil should be in good condition from previous fertilizing, and when dry enough should be plowed about ten inches deep, well harrowed and smoothed. The plants should now be set as soon as possible.

Strawberries should be planted in rows five feet apart, the plants eighteen inches apart. The planting may be done with dibble or spade. Raspberries should be set three and one-third by six feet; blackcaps and blackberries four by seven feet; currants and gooseberries five by six feet.

The easiest and best way to set out the plants, except the strawberry, is the following: After the ground has been well marked and furrowed out with horse and plow, making a furrow seven inches deep, as the plants should be placed in the ground that depth, set out the plants. The roots should be thoroughly wet and placed in a pail or basket. One boy carries the plants, handing them one at a time to the planter, who places them in the furrow and draws sufficient earth around them to well cover the roots, not stopping to pack the soil until all the plants are set, when the soil may be firmly pressed about the plants with the feet; then, using a hoe or potato hook, draw enough earth into the furrow to fill it half full, and the cultivator will do the rest. By this process the plants are exposed to the air the least possible time, thereby insuring a good stand. When through planting it is always best to go over the ground with the cultivator, and every two weeks thereafter during the growing season.

Plants should not be allowed to fruit the first season.

When uncovering the strawberry beds in the spring it should be remembered that the earliest varieties should be uncovered about the first of April, the medium about the middle of the month, and the late the last of the month.

The President: I think you will have some questions to ask of Mr. Wright. I especially wish to commend Mr. Wright's reading of his paper. It was not read in a particularly loud tone, but his utterance was deliberate and distinct, something we might very well follow. Such a delivery is much more distinct and easily understood than one that is loud and rapid.

Mr. W. L. Taylor: I would like to ask Mr. Wright whether he ever tried the Dunlap and the Haverland?

Mr. R. A. Wright: Yes, and I liked them very much, but I thought for the general small fruit garden the Splendid was about as good as anything we had. The Dunlap is good; I don't think it can be beaten, but the general grower lets them run too thickly in the row.

Prof. Green: Do you cover your strawberries before or after freezing?

Mr. Wright: My strawberries are not covered yet. I used to cover early, but I changed that plan and cover late.

Mr. R. H. L. Jewett: Mr. Wright speaks of the North Star currant; I would like to ask him whether he ever tried the Pomona?

Mr. Wright: I never have.

Mr. Jewett: I have tried the Pomona, and it yields twice as much as the North Star, and the fruit is of a better quality.

Mr. Wright: I have only a few of the North Star, but I have a friend who has planted an acre of North Star, and he thinks there is nothing like it.

Mr. C. C. Hunter: What do you think of the Loudon raspberry?

Mr. Wright: I wouldn't plant it if you gave it to me.

Prof. Green: What is the objection?

Mr. Wright: It has proven a total failure with me the past two years. I found it to fail with growers who were at first delighted with it.

Prof. Green: Is the quality of the fruit poor or does it not ship well?

Mr. Wright: The great trouble is, it is inclined to be soft and of too dark a color.

Prof. Green: It is too ripe before you pull it off?

Mr. Wright: That is the trouble.

Mr. Frank Yahnke: We had three questions asked here and that is the reason I get up. I believe just the opposite to what they believe. I believe they are correct, but I believe I am correct, too. I do not believe the people at Excelsior know how to pick Loudon raspberries. (Laughter.) If they did they would know how to grow them—or else they never had them. There is another thing; the gentleman spoke against the North Star currant. If I had been asked the question three years ago I should have said the same thing, but since then I have changed my mind or the berries have changed. (Laughter.) There is no better currant growing than the North Star if you use it right. They are exactly like a plum tree or any other tree, they must be used right. You have got to give them good culture and plenty of manure. If you give them plenty of good fertilizer you will get so big a crop that you cannot beat it with anything else, because you couldn't get more fruit on the bush. (Laughter.) They are just as good as any currant you can get. I don't want a sweet currant; the currant is used for jelly, and it shouldn't be sweet for that purpose. As I said before, you have got to give them high cultivation and rich fertilization, and they will stand by you every time. (Applause.)

Mr. Probstfield: So far as the North Star currant is concerned, my experience is the same as that of Mr. Yahnke's. With me it has given exceedingly good results, and if it is not what it ought to be it is certainly all I can expect with the cultivation it gets. Small fruit on the farm does not receive the same kind of attention that a market gardener or fruit grower would give it. I am indebted to Prof. Green for having sent that currant to me, and I want to thank him for it.

Mr. S. D. Richardson: When I was a farmer living in Martin county and farmed like other farmers I let my currants grow wild. A year before I left the farm they were covered with grass and weeds in profusion. I cut them out and then went to where I had been chopping wood and got the chips, with which I covered the ground six inches deep, and then I covered that with well-rotted manure. That year I left the farm, but the next year there were bushes there as tall as my cane, and they had grown so they could not stand alone. The currants bore so heavily that they would lie down on the ground, and that all came of giving them plenty of manure.

Mr. Frank Yahnke: I understood Mr. Wright to say that he recommends planting blackberries seven feet apart. That is all right, but I tell you I would rather double it. (Laughter.) I would not advise a novice who is just beginning to plant blackberries to plant them seven feet apart, because in three years he would be disgusted and dig them up. It is impossible to get through them at seven feet apart. I started mine at ten feet, and they were too close.

Mr. Wright: I have had some experience with blackberries, having had three acres on my place. They were planted eight feet apart, and the patch is still on the place. I had another patch six feet apart, and I never had better returns than from that corner of the farm. They were loaded tremendously, but the canes had to be kept cut back. I had a wire on each side of the row, and I cut them back severely. This paper dealt with the small fruit garden. I was not supposed to give large growers any information, but it was for the benefit of the general farmer, and he would think it foolish and a waste of land to plant them so far apart. I was getting just as near to the farmer's standpoint as I could get; that was my idea. I always planted my blackberries eight feet apart, blackcaps also.

Mr. F. D. Wells: I would like to ask Mr. Wright how he restricts the Senator Dunlap?

Mr. Wright: I asked Mr. Kellogg how he did it, and he said after they got full enough he went along with a garden rake and pulled them out. I had a few this year and I simply pulled out the weak plants. I never did very much thinning myself. The Senator Dunlap planted 2½ feet apart in the row and the rows five feet apart will not overrun very much unless it is an exceedingly wet season.

Mr. Jewett: I think a good horticulturist will profit by the failures of others. I must coincide with Mr. Wright's views in regard to the Loudon raspberry. I succeeded in getting some nine or ten acres, a fine stand, but a weakness struck them; I think Prof. Green told me it was root gall, but, anyway, the result was I plowed all of them up. The other berries I had growing, the King and others, were not affected by them.

Mr. Wright: I planted the Loudon and recommended it for two or three years, but I got rid of all of them. A disease has got into them which affects them more than anything else. I have furnished boxes to the growers for the past two years, and there has been a terrific complaint about the Loudon. The general expression is that they will never plant another Loudon.

Mr. Frank Yahnke: I have had the floor several times, but I cannot keep still on this Loudon question. I believe these gentlemen are right. As far as I can see the trouble is only local. The trouble is not in the variety, but it is the location, and the best way to stamp out the trouble is not to plant of the infected plants. Get new stock from a different locality where the trouble does not exist. It is like the remedy the doctor prescribed. He had a patient sick with ague, and he cautioned him against eating beans. This patient was a blacksmith, a strong man, and accustomed to eating a hearty meal, and he disregarded the doctor's order and partook heartily of baked beans. For some reason he recovered rapidly from his ague. The doctor noted the result, and for the next ague patient, who happened to be a tailor, he prescribed baked beans. The tailor ate the beans and died. The doctor put down the outcome as a new medical discovery for future reference in this wise: "Baked beans will cure ague in a blacksmith, but will kill a tailor." (Laughter.) The Loudon is one of the best berries in the state except at Excelsior. (Renewed laughter.)

Mr. Wright: I wish to inform Mr. Yahnke that I did not confine myself to Excelsior exclusively, but to Long Lake, on the north shore of Lake Minnetonka, and, in fact, in the whole region surrounding Lake Minnetonka the fruit growers are all discarding the Loudon.

Mr. R. H. L. Jewett: My Loudon are sixty miles south of Lake Minnetonka, and they are good for nothing.

Mr. A. Brackett: I have been growing the Loudon for a number of years, and I find it to be one of the hardiest of berries. But, as Mr. Wright says, they are discarding the Loudon on the other side of the lake. I sold 1,500 to a gentleman over there, and his neighbors laughed at him, but he said he raised more off of his Loudon than any of his neighbors ever did.

Mr. H. H. S. Rowell: I have heard the Loudon strongly recommended as being very hardy, and as being the only raspberry that could be left uncovered during the winter. I would like to know as to that, whether it is hardier than others, or whether there are others equal or superior to the Loudon.

Mr. Brackett: I think it is the hardiest berry we have, with the possible exception of the King.

Mr. J. L. Tiegland: I have tried raspberries a little, and I have found the Loudon to be the best, anyway, so far as my experience goes. I have not covered them the last few years, but they have done very well with me.

Mr. Probstfield: I have raspberries that are not cultivated to any extent. They have been standing seventeen years in the same patch, and we get a big crop of berries every year. If we have a dry year the crop is not so large; they never winter-killed except in the early '90's, but since they have never been injured. At the time I have reference to we had no snow.

Mr. Wright: Talking about winter-killing, I have had the Loudon winter-kill, too, three or four years, and I would not risk them without being covered. Some winters they will come through all right.

Mr. Seth Kenney: I have raised the Loudon for five years, and while they have killed back some I have never failed to get a good crop. It is the hardiest red raspberry I have ever tried.

Mr. T. T. Bacheller: To go back again to strawberries, I would like to ask Mr. Wright why he does not include the Warfield. Out of six varieties we had we picked more of the Warfield than of any other variety.

Mr. Wright: I think the Warfield is one of the best berries, provided it has moisture enough. During a dry season we had—I think it was some eight years ago—I started in with the Warfield. I raised them three years, and I do not think I got a single good crop, but during the wet seasons we had they gave good returns. That is about all that can be said against the Warfield.

Mr. J. H. Williams: Is there danger of the Warfield running too much?

Mr. Wright: The Warfield is a good plant-maker, but I never experienced any trouble in that direction.

Mr. Martin Penning: I would like to ask Mr. Wright how he regards the Fay's Prolific currant?

Mr. Wright: The Fay in our vicinity produces a splendid currant, and for a year or two gives good returns, but after that it does not seem to do so well.

Mr. Penning: With what do you fertilize the Warfield?

Mr. Wright: We have the standard staminate varieties, but the Bederwood is the most common of all that blossom at that time.

The President: While speaking of currants I want to put in a word myself, especially in regard to varieties. I happened to be in St. Louis during the time the currants were at the exposition, and we showed some of the nicest currants that were there. I think the finest currants shown from Minnesota were the Pomona; they were the largest and most showy; they are a variety that attract much attention. However, in the New York exhibit there was a new variety, called the Perfection, which were the largest I have ever seen. It seemed almost miraculous to me to see such currants; I could scarcely believe my eyes were not deceiving me; they were absolutely most astonishing to look at. Since then I have seen one of the men who travels for our largest nursery firm, and who is acquainted with this variety, and he tells me he has been watching this currant for a considerable length of time, and he says it is not only productive, but it is also a good fruit.

Mr. A. Brackett: I want to say one thing more about the Warfield not standing the dry weather. After this variety was in blossom the past season we were having some very dry weather, and I never knew of so many plants being killed out. I found the leaves were beginning to wilt, and I thought the ground would not support them. I thought the condition was caused by the dry weather. We live close by the lake, and I had my boy dig six or seven holes and put a wheelbarrow load of manure in each. We put on a barrel of water and the next morning we could see a marked difference. We sold a great many berries from that patch, and many of them measured one and one-quarter inches in diameter.

Mr. C. C. Hunter: I would like to inquire whether anybody knows anything about the Red Cross currant? I know that a good many farmers are setting them out.

Mr. Gust. Johnson: I have tried the Red Cross currant and I like it the best of any.

Mr. Hunter: Is it a good shipping currant?

Mr. Johnson: Yes, it is very good for that purpose.

The President: Has any one tried the Perfection, about which I spoke a few moments ago?

Mr. John Nordine: The Jewell Nursery Co. has propagated the Perfection for two years. We have not propagated it very long, but I can say for it as a grower that it resembles the North Star, it being a very strong and vigorous grower, and I believe it will be a splendid currant for our country. I have never seen the fruit.

The President: Does the bush appear hardy with you?

Mr. Nordine: I believe it is going to be as hardy as the North Star. It is an upright grower.

Prof. N. E. Hansen (S. D.): About the Red Cross currant: I saw that in the Black Hills. It is not nearly as good as the Knight's Prolific and the London Market. Those two were grown under irrigation. I would like to know of the currant growers, and I would like the information to go out, whether any know of a currant that holds its leaves along in the fall, or will they all fall off on account of this leaf disease?

Mr. Frank Yahnke: The Long Bunch Holland will hold its leaves as long as any.

Prof. Green: The Knight's Prolific will hold its leaves and so will the Long Bunch Holland.

Mr. J. W. Merritt: I want to say that the Red Cross currant and the London Market hold their leaves very well.

Mr. J. L. Tiegland: I would like to say a word about the White Grape currant. I have tried a number of other varieties, but the White Grape is the best of all. I have tried the Red Cross, the Red Dutch and the Victoria, but the White Grape did better than any other.

Mr. J. A. Shephard: I am here for information in regard to raising the different kinds of fruit. Some parties state they have success with a certain kind of fruit, for instance, with the Red Cross currant, and say it is a good one. If they will give us instruction in regard to the soil and the manner of treatment we will then know how to handle these different varieties. Some will do well on one kind of soil and some on another, but I think when any information is offered here it should state the kind of soil and the manner in which the fruit is treated, then we will get some information.

Mr. J. W. Merritt: The location and the character of the soil in a great measure determines the quantity and quality of the fruit. In our locality we have a heavy clay soil.

Mr. H. L. Webb: We have made a great success with the Cuthbert raspberry.

Mr. A. Brackett: I think this currant question is developing into about the same kind of a problem as confronted the three men who went out hunting for a day. They put in the entire day hunting and came home very hungry. They went to a restaurant and one of them ordered turkey, another quail on toast, and the third, who happened to be a preacher, ordered chicken, of course. After eating the meal they got into a dispute as to which bird or fowl was the best. The man who had the quail on toast contended for his bird, the second man made similar claims for the turkey, and the preacher was perfectly sure that chicken was best. They decided to leave the matter to the waiter to determine. When the waiter came to their table they told him of their dispute and asked him to decide the matter. The waiter said they were all good. They told him that did not settle the question, they wanted to know which was best. "Well, gentlemen," the waiter replied, "for myself I prefer the American eagle served on a silver dollar." That is what we are all after, the one that brings in the most dollars.

Mr. Wright: I wish to say in regard to the Cuthbert, which was mentioned a few moments ago, it was raised for years in our vicinity, but something went wrong with it, it went back on us. However, in Aitkin county I find the Cuthbert is doing very well, one of the best there. The Crimson Beauty for a market berry has never proven successful that I know of.

Mr. Frank Yahnke: The question lies right here in this matter of situation and treatment that the gentleman spoke of who asked for information. We contradict each other, when at the same time we may all be right. The solution is right here, every one must try the variety suited to his location and to his soil, and he has got to try that for himself. Nobody else is going to work out his salvation in that direction. The Loudon does well with me; but with Mr. Wright it does not do well, simply because the soil and the conditions under which it is grown are different.

Mr. J. W. Merritt: At my place I would not take the Loudon as a gift, and my place is not very far from Mr. Yahnke's.

THE VINEYARD IN MARCH AND APRIL.

MRS. ISABELLA BARTON, EXCELSIOR.

In the climate of Minnesota it is seldom there can be much done in the vineyard in the first weeks of March. The ground is still frozen and often covered with snow. Sometimes in the latter half of the month there is much that can be done. The bright, warm days of early spring soon make an impression on a south hillside, and there is where the vineyard is supposed to be. Nearly all writers on grape culture recommend a hillside inclining to the south, as the best exposure for the vineyard, never a north or full western exposure. See that the land is sufficiently elevated above streams or ponds of water, for if near their level the situation will be very likely to be subject to early and late frosts.

There are very few soils that a person of good judgment will select for a vineyard that will need any further preparation than that which can be made with the plough. When the ground is in good condition lay off your rows eight feet apart, and your vineyard will look better if your rows conform to the contour of your hillside.

Get your vines in the fall and heel them in and as soon in the spring as the condition of the soil will permit plant them. The condition of the soil must govern us in this. It will not do to plant the vines when the soil is soaked with water, nor will it do to plant when the soil is too dry. It should be in that condition which allows it to be easily worked and the soil fall nicely around the roots. When a number of vines are to be planted it is best to dig holes before the vines are taken to the field. When they are taken from the place where they have been heeled in, their roots should be kept covered from the air and sun. The vines should be pruned before they are taken to the field, pruning both root and vine. 'The holes to receive the vines should be dug from six to ten inches deep. Now set the vine in the hole, inclining the vine to the east, for we are to trim to one arm for convenience in winter covering. Spread out the roots in every direction and throw in a little soil to hold them in position. Now fill up the holes, pressing down the soil firmly with the foot.

Residence of Mrs. Isabella Barton, Excelsior.

Now that we have our vines well planted we can set up our trellis. Put in a good, dry six-foot post of oak, setting them twenty or twenty-two inches in the ground and twelve feet apart. Use No. 12 galvanized annealed wire. Place the first wire eighteen inches from the ground and divide the remaining space with the rest.

Often in early March the warm rays of the sun will melt the snow from the hillside, and spurs of vines that have been carefully covered in the fall will be exposed to the freezing and thawing of early spring and be injured. They should be looked after and some protection given them.

If there is grafting to be done, now is the time to do it. The time generally selected to graft the vine is early in the spring before the vine starts. This early grafting is very difficult in a northern latitude, where the ground thaws out only a very few days before the sap begins to flow. So one must be ready for business on time. The ground should be cleared from all brush and vines of the last season; posts straightened; wires tightened, etc., everything ready for the plough.

The time to lift vines from their winter covering depends on April weather. I usually lift two or three vines of some early variety to see if the buds are swelling, and if I find they are all are taken up and tied to lowest wire of the trellis, and the winter covering raked over and smoothed off. Commence tying the new growth as soon as it is long enough to reach the second wire, and hurry up, or they will get ahead of you.

FLOWER GARDEN AND LAWN IN MARCH AND APRIL.

MRS. A. S. HANSON, 3232 HARRIET AVE., MINNEAPOLIS.

With the first warm sunshine and spring thaws come thoughts of budding trees and flowers to the flower lover, and we are impatient to get at our gardens. In our climate there is not much that can be done in March. Of course we do all our planning and ordering of seeds and plants and shrubs, so that we are ready for work when spring opens. If the lawn needs fertilizing we put on barnyard manure and let it get the March snow and April showers. If there is little rain we use the garden hose freely and are sure to rake the refuse off before it rots the grass. I start all my flower seeds in a hotbed which I make the last of March. Any one can make a little hotbed without much labor or expense by using a storm sash, which can now be spared from the house. I prefer growing my plants in a hotbed to sowing in the open ground. I can make my garden neater by transplanting my plants in beds nicely made and evenly planted and get earlier flowers. Aster seed planted the 17th of April were in bloom the third week in July.

The last of March or the first of April we begin to partly uncover, first the tulip beds and then the rose bushes and vines and hardy perennials. If we have a spring such as we had last year we will not do much of this work until the middle of April. I watch nature, and when she begins to uncover, so do I. When the children bring in the crocus blooms I uncover my garden, not all at once, but a little at a time as the weather grows warmer. I cover everything, no matter how hardy it is supposed to be, and when uncovering I dig the good rotted manure in around the roots of roses, shrubs and perennials.

Now is the time to prune. I begin on the hydrangea first. That I trim back fully one-half and take out all small, weak branches. I then get fine large panicles of bloom instead of numerous small, inferior blossoms. The lilacs, snowball and syringas we do not prune in the spring, they having set their blossom buds in the fall.

Now the hybrid perpetual roses are ready for their pruning. These I prune to about a foot from the ground, as the blossoms come on the new wood, and we want to have as much new wood sent out as possible. If you are a new hand at growing roses you will not like to trim so severely, but it is roses we want, not bushes. Most roses bloom on the new wood. It took me three years to learn that the Persian Yellow bloomed on the old wood, and when I did discover it, such a shower of gold! Instead of five or six blooms I had over a hundred. The climbers we tie up to the trellises—but do not trim any but dead wood, for they bloom on the side shoots.

Residence of Mrs. A. S. Hanson, No. 3232 Harriet Av., Minneapolis.

We plant the roses when the ground has warmed, usually the latter part of April. Roses are sociable people, they do not do well planted singly. I plant in rows, and I prefer the budded stock. Dig holes plenty large for the roots, do not crowd them, lay them out naturally. In using the budded plants set the plants so the bud will be fully an inch below the ground—no matter how deep you put the roots so the bud is under the ground. Be sure and have good, rich earth under the roots. Now fill in, pressing the earth closely around the roots. I learned when a child to always press the earth well under the main stalk, or heart, I think my father called it, of shrub or tree. Now press the earth firmly with your foot and water. Do not water too much, as it keeps the earth too cool, and the rootlets can not grow.

We now uncover the clematis vines, which come through the ground about the first of May. The clematis Jackmani will be full of bloom the first part of June, but the clematis paniculata blossoms in the fall. Some experience difficulty in getting the clematis to grow. I have had none. I dig a hole plenty large for the root, I spread the roots as near like nature had them as I can, I make the earth very fine with my hands and fill in around the roots firmly and then tramp it firmly with my foot. Planted this way I do not see why they will not always grow, mine do. Sometimes the clematis p. is tardy about appearing in the spring. Do not dig it up for dead, but wait. I had one five years old which did not come last spring until the 24th of June. Sometimes they come even later than that, but this is not common. I wish every body would grow the clematis p. They are hardy, very free growers, clean, never troubled with insects and beautiful beyond description.

The first thing I plant in the ground is my sweet peas. These I plant in the ground as near the first day of April as I can work the ground. I dig out the earth about a foot, often picking the frozen ground with the pickax; then I put in plenty of well rotted manure and then earth to nearly fill the trench; now plant the peas, cover about two inches and firm the earth well over and around the seed. Some will say, "Why do you plant so early? They will not grow." They will grow, and even if snow and frost come it will not harm them. The secret of growing sweet peas well is to have the roots down deep where it is cool and moist, and by early planting the vines make a deep root growth, which helps much in the hot months of July and August. I have had peas planted in this way grow eight feet high and blossom continuously from the 15th of June to the 6th of November, when killed by frost. Always plant early, no matter what the neighbors say. It is such a satisfaction to have the earliest, largest and best of everything we grow.

The hardy perennials are now ready for attention. The first to be uncovered is the peony. The peony is the foremost hardy perennial of the day. It is absolutely hardy, and its ease of culture suggests it at once as the plant above all others for busy people. Hardy without protection, they are greatly benefited by a mulching of well rotted manure after hard freezing sets in. This forked in the ground in early spring insures a heavy crop of flowers. They may be planted any time after the first of September, which is the best time, or in the spring as soon as the ground can be worked, and once planted should not be disturbed, for the peony resents interference with its roots. They are entirely free from disease and insect pests. Each year the hardy perennials increase in beauty and variety. Especially are they recommended to flower lovers with limited time and experience. The possibility of failure is so slight, their care so comparatively trivial, and once established they become alike impervious to extremes of heat or cold. They yield the earliest spring flowers after the bulbs, and a well chosen variety affords a succession throughout the season. In uncovering do not anticipate the weather, but wait, give the plants time. I pulled up some of my pyrethrum and most of my gaillardia last spring because I could not wait and thought them dead; but I learned a lesson. Experience is the best teacher.

Mr. D. S. Hall: I can recommend what Mrs. Hanson says about covering as soon as the ground freezes in the fall. It is best to put on a part of the covering at that time, and when we have weather as we have now, with no prospect of snow, put on more. In the spring uncover partially.

Mrs. F. H. Gibbs: I would like to ask whether any one has had experience in digging trenches for sweet peas in the fall and putting in the dressing at that time?

Mrs. Hanson: I think that is much the better time if we can do so.

Mr. H. J. Baldwin: I think a little detail in regard to making the hotbed for starting early plants might be given. I have had considerable experience in that direction, and it is not so much of a job as one might suppose. We had a number of boxes a foot square, then we dug holes in the ground a foot deep and put in a few forkfuls of warm manure, just enough to take the cold out of the ground, and by sifting the earth through a sieve and then sowing the seeds in rows, and being very careful for a few days to see that the ground does not dry out before the seeds germinate, we get the most magnificent plants. That is the critical time. Most people put in those little fine seeds two or three times too deep, and then the seedsman catches it because his seeds are no good.

The President: Those are very valuable suggestions, especially that in regard to planting too deep.

Mr. Carbine (Ore.): What depth of earth do you put on the manure?

Mr. Baldwin: Usually on our hotbed for vegetables we put on about six inches, but for those little boxes in which to plant fine seeds four inches is an abundance. It would probably not be enough earth to make the plants large enough to set out where they are to stay.

Mr. Frank Yahnke: Would not the manure make the earth too hot if there were only four inches?

Mr. Baldwin: Not if he put in only a few inches of manure.

Mr. Probstfield: I see members are somewhat shy about speaking of their experience with hotbeds, but I have made hotbeds for our own use for the last thirty years. I will describe mine. We make no hole in the ground, because if we get a heavy shower of rain or a snow storm we will get too much water in our hotbed. We pile up two feet of well rotted horse manure and work it over to make it according to requirements. We have generally about four sashes, taken off the house, and those will cover a hotbed about twelve feet long and six feet wide. In that hotbed we raise all our own cabbage and tomato plants every year, and also all the flower plants we want to set out, and it is very little trouble except when the seeds are coming up. I do not sow the seeds until the ground becomes warm, and we put in about six inches of earth. After the earth becomes warm we plant the seeds. We cover the seed with an old gunnysack, but they have to be looked after every day, and as soon as the first seed sprouts take off the sacks. If you can

Clematis paniculata at residence of Mrs. A. S. Hanson.

sprout the seeds there will not be much trouble, but if you have promiscuous seeds you will have to be careful. After the seeds are sprouted you can take off the covering. The seeds must be watered, and if you neglect them they will dry up. You have to cover them up when there is danger of freezing, and if it is too warm you can leave the sash up a little. It is very important in order to have good, healthy plants to have plenty of ventilation. Also do your watering in the evening so your plants will not be injured by the sun. In the morning the hot sun will come on the glass, and it is apt to blight or stunt the plants. The method is very simple, and we always have splendid success.

VEGETABLE GARDEN IN MARCH AND APRIL.

R. L. BAILLIF, BLOOMINGTON.

From my experience in raising vegetables, limited to some use and observation, the first essential requisites required are the soil and treatment. The ideal soil is a rich alluvial or sandy loam if it can be had, but most any soil will do provided it is well underdrained. The ground to be used should be prepared the fall previous. It needs to be well manured, and good stable manure is the best, as it will not only assist in loosening the soil but will also add the humus necessary to plant life. Light sandy or gravelly soil will require large quantities of manure for best results. It should be plowed and thoroughly pulverized to give the seed and plants a fine bed in which to grow. In March there is very little open gardening to be done, as the ground is usually frozen and cold at that time in this section of Minnesota. The winter onion is a vegetable that can be grown in March, also the early bunch onion, or scallion, as they are usually called. It is quite easy to raise your own sets. The seed should be sown on quite poor soil in the spring, scattering it thickly in rows about one inch wide and covering about one inch deep. The idea is to grow the seed thickly on very poor ground, so that the plants will grow crowded together and not become large. When the tops die down the sets should be lifted, dried in the shade and stored in some safe place where they will freeze hard, during the winter. Plant the sets in March as soon as the ground thaws and is dry enough. Plant in rows twenty inches apart, and two inches apart in the row.

The Egyptian onion set is the earliest and hardiest variety. They continue to grow during the open weather and will make the very earliest, but do not produce bulbs and seldom any seed, the set being borne in clusters or bunches at the top of the stalks. The roots also multiply, and roots can be set out in early fall, which is the best time when they will grow the first thaw we have in March. A slight mulching will be beneficial, although freezing does not damage them. They are the earliest vegetable we have in March.

Carrots can be sown about the first of April or as soon as the ground can be worked. Sow the seed in drills, fifteen inches apart, covering half an inch deep. Thin the plants to two inches in the row. I find Early Scarlet Horn the earliest.

Spinach can be sown the first of April in drills one foot apart, covering one inch deep. There are several varieties. The prickly or winter kind may be sown about the first of September and protected by covering with straw usually, and raised this way will be ready for use about the 20th of April.

Lettuce and radishes can be grown the same as spinach by growing the early and hardy varieties.

Residence of R. L. Baillif, Bloomington.

Peas may be grown from the 5th of April in drills, two to three feet apart, three to four inches deep, according to varieties. For very early if only covered about one and a half inches deep they will mature sooner. Peas mature quickest in light, dry soil. There are many varieties for garden use. The early dwarf kind is the best for early.

Beets and turnips for early are raised about the same—from the tenth of April or soon as the ground can be worked. Sow in drills twelve to fifteen inches apart. Cover beet seed from one to one and a half inches deep, and turnips only half an inch. As the plants grow, thin from four to six inches apart in the drill. The choice for home use are beets, Early Crimson Globe; and for market gardeners, turnips, Early Purple Top and Early Snowball.

There are other vegetables that may be raised at this time, but I mention a few only that every one should raise for home use who has a plot of ground for a garden.

Mr. C. F. Gardner (Iowa): What do you recommend, fall or spring plowing?

Mr. Baillif: I usually have the best success when I plow my ground in the fall. Here in Minnesota we have to do the work in the fall because the ground is usually frozen in March when we have to begin.

Mr. Yahnke: Do you sow winter spinach?

Mr. Baillif: Yes, that is the best time.

Mr. Yahnke: What variety?

Mr. Baillif: I usually sow a variety that a good gardener would recommend for a winter variety.

Mr. Yahnke: Do you ever grow your onion sets?

Mr. Baillif: I have grown the Egyptian because they are the earliest. They will grow as soon as the ground is thawed at all. They are perfectly hardy, and freezing will not hurt them whatever.

Mr. H. J. Baldwin: My experience in the matter of preparing the soil for early vegetables is that it pays to plow in the fall and again in the spring. If a man has a fine dressing or compost he can put on in the fall or winter after plowing and will then plow it again in the spring, he will find it a paying piece of work. It puts the land in nice shape for early work.

Mr. Hamlin V. Poore: In regard to fall plowing, I wish to say that I have never seen land plowed late in the fall that was bothered with cut worms in the spring. It leaves no place for them to harbor and kills them all out by spring.

The President: That is a very important thing, indeed.

Mr. Brackett: I find that late fall plowing will hold moisture better than land plowed in the spring.

Mr. J. A. Shephard: I always plow in the fall, and after the plow I run the sub-soiler. I find the next spring I have plenty of moisture. If it is a wet season the sub-soiler helps the drainage, and I think if every one would plow the land in the fall and let a sub-soiler follow the plow they would have no trouble either with drought or with too much moisture. My soil is a clay soil.

Mr. S. D. Richardson: I want to say that I live in southern Minnesota, and we do not need a sub-soil plow; Jack Frost is all we need, and we usually get plenty of his assistance. If we plow in the fall we cannot plow in the spring, because the plow will not scour. We might drag it, but we cannot plow it for that reason. We do not do any spring plowing where we plow in the fall.

Mr. Elliot: I would like to know what use there is in plowing in the spring where you plow in the fall.

ANNUAL MEETING, 1905, SOUTH DAKOTA STATE HORTICULTURAL SOCIETY.

J. L. TEIGLAND, DELEGATE, MINNEOTA.

The sixteenth annual meeting of South Dakota Horticultural Society was held in the City Hall, Huron, S. D., the 17th and 18th, and in the depot hotel on the 19th of January, 1905. As the president was absent, the meeting was called to order at 10 o'clock a. m. by the vice-president, Mr. C. W. Gurney, who presided during the meeting in a manner that was a credit to himself and to the society as well.

Col. J. H. King, of Huron, talked to an appreciative audience about the necessity of planting home grown trees. He was in favor of having laws passed, one protecting the farmers from tree swindlers and one compelling the directors of school districts to plant trees around every schoolhouse. To have success in tree raising one must first put the ground in good condition and then give the trees proper care.

R. D. Whorton, Huron, S. D., gave a talk on "Vegetable Gardening." He has been doing an extensive business in market gardening, relying on irrigation for his water supply.

Mr. Gurney believed the Beta was the only grape for Dakota, as it was so hardy that it didn't need any protection even at Huron.

Mr. Y. C. M. Yegge, Alpina, raises large quantities of the Early Richmond cherries. His trees are loaded every year. He top-grafts his cherry on wild plum trees, doing the grafting in March before the buds swell. He had an old cherry orchard that was a failure, his trees being almost dead. He experimented with grafting cherry on his plum trees, and, to his great surprise it proved a splendid success. Our nurserymen and fruit growers should investigate this method, as it may be a means of making cherry growing a success in a large portion of our state.

Discussion on this subject brought out the fact that dry, porous soil was best suited for cherries.

Mr. Gurney has had great success in raising asparagus. He plants in rich soil and cultivates first year, after which they take care of themselves.

A. J. Glidden, Hitchcock, had currants that yielded him fifty cents' worth per bush.

Several of the strawberry growers cover their plants with fresh manure, preferably after snowfall.

Mr. Gurney would recommend mulching currants with fresh manure after a hard rain. If you cultivate, cultivate very shallow.

J. H. Musser, Huron, has an everbearing raspberry that is hardy without any protection. Picked fruit from June 25th to September 27th. Fruit was large, juicy and red.

The subject of "Orchard Management" produced considerable discussion. Those who have had good success recommend thorough cultivation, and where the rainfall is not sufficient it will be necessary to irrigate.

On the question of windbreak for the orchard there was considerable difference of opinion as to what it should be composed of. The largest growers seemed to favor the planting of more apple trees around the orchard. The varieties recommended for general planting throughout the state were the same as the Minnesota Horticultural Society recommends for commercial planting.

The rabbit seemed to be a very important fellow in the orchard. Some kept him out of mischief by planting corn between the rows and leaving it for him to feed on. Others scattered oats through the orchard for the same purpose, claiming that if he was well fed he would not hurt the fruit trees. P. F. Bentz washed his trees with a mixture of lime, sulphur and cayenne pepper, which took Mr. Rabbit's appetite for apple tree bark away, and he would leave the tree with disgust. Same wash was recommended. for field mice.

Mr. E. D. Cowles, of Vermillion, read an excellent paper on "Annual Flowers." His five favorites were Petunias, California Poppy, Drummondi and Nina Phlox and Bachelor's Button, Imperial. In foliage plants he would especially recommend Kotchia, a plant resembling a tumbling weed in form, but having beautiful coloring. Also the Castor bean, a plant having leaves that grow to be three or four feet across, giving it a tropical effect. It would look well used as a screen.

In propagating apple trees Mr. Geo. C. Whiting doesn't allow any side branches until the third year. He found that they would make a better top having a strong central shoot with branches set evenly around the main stem, and not forming any crotches.

Mr. Bentz mulched alternate rows of one year old apple grafts in March, after severe freezing was over. The rows left unmulched almost entirely killed, while what were mulched were almost a perfect stand. Does not this prove that it was the too rapid thawing, or the thawing and freezing in the spring that killed the trees, and not the cold weather in the winter?

Mr. Cowles stated that a certain nursery makes a practice of mowing down their one year old apple grafts with a mower, whereby they get a crook on the tree making it pass as a budded tree.

The subject of forestry was ably presented by Mr. Whiting, Mr. Henry Hinds and others.

Col. J. H. King, a real estate dealer doing an extensive business, stated that a grove on a farm increased its selling price $5.00 per acre. Mr. Whiting had ten acres of cottonwood which, after being sawed up, yielded him a larger profit per acre, yearly, than a like acreage planted to nursery stock.

There were several other valuable papers read, but space will not allow me to mention them here.

Legislation. There was passed a resolution asking the legislature to pass a more stringent inspection law, also a law to protect the farmers from tree-swindlers, as well as a tree bounty law.

As officers of the society for the ensuing year the following were elected: President, M. J. DeWolf, Letcher; vice-president, N. O. P. Synoground, Groton; secretary, N. E. Hansen, Brookings; treasurer, J. McD. Campbell, Huron; librarian, E. D. Cowles, Vermillion.

ANNUAL MEETING, 1905, NORTH DAKOTA HORTICULTURAL SOCIETY.

E. A. SMITH, DELEGATE, LAKE CITY.

The North Dakota State Horticultural Society met at Fargo, Friday, January 20th. Meeting was called to order by the president, Mr. Jas. Holes, of Fargo, who was ably assisted in the preliminary work by Prof. C. B. Waldron, secretary. A new organization was effected, and new membership secured. Mr. A. J. Philips, of New Salem, Wisconsin, gave a very interesting talk upon the development of apple seedlings. He had numerous specimens with which to illustrate his subject. A very general interest was aroused, and a discussion followed. Mr. E. A. Smith, of Lake City, Minnesota, delegate of the Minnesota Horticultural Society, was then called upon and the following extracts represent the trend of his remarks:

"As a delegate of the Minnesota State Horticultural Society I bring greetings. The Minnesota Horticultural Society has done wonders in encouraging and stimulating the planting of trees, beautifying homes, parks and lawns in both town and country. What they have done, you can do. While theirs is the largest society in the United States, if not in the world, it need bring no sign of discouragement to you, as you have one of the best equipped and most energetic of all of the societies in the west. The reason of this is that you, as members, are thoroughly interested in the work of horticulture in your state. A society that has a membership that is interested is bound to accomplish something.

"Pioneer horticulture is largely a labor of love. It pays him who encourages this spirit just as it pays a man who plants a tree and cares for it. The results cannot be measured by the present, they are for future generations to pass upon. He who plants a tree plants a good deed.

"Your state opens a large field for your work. As I look over your broad prairies and find them dotted here and there with timber groves, I compare them with the prairies of central Minnesota, which were once as bare as the prairies of your own state, and I think of what has been accomplished there through the persistent efforts of men in the planting of trees, and how they have not only beautified but changed the character of the climate and landscape by breaking and tempering the winds, sheltering the buildings from the snows and storms; and when I also think of the splendid orchards that are there yielding fruit, and how not forty years ago the people said that neither fruit for corn could be grown, and how all this has been changed through the adaptation of varieties to soil and climate, then I can see what great changes will be wrought in your state in the next decade of years. You have everything to look forward to, and the Minnesota State Horticultural Society will watch your progress with interest, believing that your efforts will in a large degree be crowned with success."

These remarks were supplemented by numerous inquiries, and at the request of the society Mr. Smith gave illustrations and information regarding propagation of hardy nursery stock, its selection and adaptation to the needs of the Northwest. He was followed by Prof. Robertson of the Experimental Station, St. Anthony Park, who spoke very ably and interestingly upon "Consolidation of Rural Schools and their Organization." This closed the morning session, the afternoon session being omitted.

It is to be regretted that so little time was devoted to horticulture, which in a general way is one of the most necessary and helpful topics that could be arranged for the Northwest.

THE NEBRASKA STATE HORTICULTURAL SOCIETY MEETING.

PROF. S. B. GREEN, ST. ANTHONY PARK.

In Nebraska the different associations that are allied to agriculture meet during the second or third week of January each year, at Lincoln. Special sessions of each society are held during the day, and in the evening the different associations unite together for a general session, which is usually addressed by some outside speaker upon some special topic connected with agriculture. I was honored this year by being asked to make the address on "Agricultural Education," and while there I attended two sessions of the Nebraska Horticultural Society. These meetings were held in the rooms of the Horticultural Building, at what is known as the State Farm. There were about 175 present, mostly men. In fact, there were scarcely any ladies present, and there was little on the program that they would be especially interested in. There seemed to be much interest taken in general commercial horticultural subjects, and not so much time, as in our sessions, devoted to park matters and tree planting, these latter subjects being left largely for their park and forestry associations.

Among the matters that I heard discussed was the subject of cherries, and the injury caused to them by the shot-hole fungus. It was stated that all late cherries were badly injured in Nebraska last year and that many cherry orchards were killed. This killing was due to the weakening effect of the shot-hole fungus, which destroyed the foliage in the latter part of the summer and left the trees in a poor condition to withstand the winter. Spraying with Bordeaux mixture had been tried by only a few of the members present, and the general opinion seemed to be that while spraying would prevent the orchards from being killed it was not entirely satisfactory, and there was a generally discouraging note as regards the cultivation of late cherries.

There seemed to be a general agreement that the Early Richmond was most resistent to the shot-hole fungus, and that the Montmorency would come in next as a resistent kind. The English Morello and Wragg it was stated were most injured by the shot-hole fungus.

The subject of fruit rates was discussed, and the facts brought out seemed to show that very high freight rates were charged between points in the west, while low rates were given to the eastern shippers. In one case it was stated that the rate from southeastern Nebraska to South Dakota was 50 cents per hundred by the carload, and that when the grower got there with his freight he found he had to compete with New York state apples brought into Dakota at a rate of 13 cents per hundred. Resolutions were passed asking that Congress grant power to the Interstate Commerce Commission to more effectually regulate the matter of railroad rates.

A discussion on the merits of the Ben Davis apple brought out the fact that there was still a big demand for this fruit. Somebody expressed the opinion that while those who were familiar with the better varieties of apples were not buying it, yet ignoramuses were born faster than the Ben Davis was produced, and hence this apples still raised at a profit. Mr. Pollard, who is one of the largest orchardists in Nebraska, took decided ground against the Ben Davis, and stated that there were other varieties that could be raised just as well and were better in quality, and he thought they should pay special attention to them and not raise apples so inferior as Ben Davis and Gano.

There seemed to be quite an interest taken in the seedling work done by the Minnesota State Horticultural Society, and as representing our society I was called upon to explain our method of encouraging the growing of seedlings through the state. The general opinion seemed to be that Nebraska should do something in the same line.

I was pleased to note that the Horticultural Department at Nebraska had got into new quarters and were in very much better shape than when I was down there some two years ago. Prof. Emerson, and Mr. Kayser, his assistant, evidently have the full support of the horticultural interests of Nebraska.

OBITUARY.

Thomas Frankland, of Stonewall, Manitoba, passed to the higher life Christmas day, 1903.

Born at Bingley, county of York, Eng., 1836, he came to Guelph, Ont., in 1856, where he edited a paper, but on account of ill health abandoned the editorial chair and became a general merchant at Goldstone. He located at Stonewall about twenty years ago and was at once appointed municipal and county court clerk, which positions he held till the day of his death. With cancer of the tongue for one long year he suffered untold agony without murmur or complaint.

Brother Frankland was one of those true, kind hearted lovers of humanity whose lives bless the world. Wherever he lived he had a fine orchard. Although a resident of the far north he devoted much time and money to horticulture. His faith in fruit growing was equal to his great love of fruit. We enjoyed his presence at times at our annual meetings.

His work should give courage to millions of others whose opportunities and environments for fruit growing are not surrounded by such adverse conditions as confronted him.

O. F. Brand.

WISCONSIN STATE HORTICULTURAL SOCIETY, ANNUAL MEETING, 1905.

ROY UNDERWOOD, DELEGATE, LAKE CITY.

In many respects the 1905 convention of the society was conceded by its members to be one of the most successful in its history. Covering four days, Feb. 7, 8, 9 and 10, every session was well attended, and great enthusiasm was manifested. The convention hall was especially well adapted to the needs of the society, with a fine exhibit room for fruit on the second floor. There were over 600 plates on exhibition, including many of the northern varieties found in our Minnesota meetings, and also a great many of the older eastern varieties grown in the Lake Michigan district. Your delegate attended all of the sessions, and the program was of great interest from beginning to end. An average of between seventy-five and 100 were in attendance at each session, the evening sessions in every case filling the hall to the limits. The first evening a male quartet sang between the papers; the second evening it was a mandolin club, and the third evening a full string orchestra. Music was thus a pleasing and dominant feature. At this point I wish especially to mark the cordial hospitality evidenced by all the Wisconsin people. All of the foreign delegates were greeted warmly and made to feel at home from the very beginning. The banquet, although the first in the society's history, was one of the happiest and best managed affairs the writer has attended; the Madison people know how to do these things right—they lay it on just thick enough to suit all tastes.

Side view of Horticultural Hall, University of Wisconsin, Madison, Wis.

Although the convention occupied the same time as our Minnesota meeting, there were fewer papers and considerable more time spent in discussion. In his annual address, President Loope paid particular tribute to the Wealthy apple as the most important variety in their state. Through the society over fifty barrels of select Wealthys were distributed at the St. Louis exposition, each wrapper bearing the legend "Wisconsin Wealthy" and other advertising matter; several times during the convention the Wealthy was brought out in the most complimentary way, and there seems little doubt but that it leads all Wisconsin seedlings in the general estimation of Wisconsin people.

The secretary's report showed several interesting things. The Wisconsin society has established three experimental orchards in various parts of the state and is about to start another, and the management is vested in the secretary by a committee. The society took a more direct interest than did ours in the fruit display at St. Louis. In addition to the $5,000 wrested from their commission, they also gave $1,000 from the society treasury; a large amount of fruit was stored, and the sixty-five dozen plates on exhibition were kept filled from the beginning to the end of the fair. As an advertising feature the secretary sends out press bulletins which are published in 600 odd country papers throughout the state. These are newsy items regarding the doings of the society and reach a great many people. The destructive fire in the Wisconsin capitol a year ago demolished the entire library of the horticultural society, but by strenuous activity a new collection has been made that will be even larger and better than the old one. During the past year the Wisconsin society has expended $6,000 in the various departments of its work.

Our esteemed friend, Mr. A. J. Philips, who has been appointed by the Wisconsin society as delegate-at-large to nearly all the Western societies, gave his report, and in it he said many complimentary things for the Minnesota horticulturists and especially commended our form of organization.

A noteworthy feature in Wisconsin horticulture is the interest in local societies. The state organization, by various means, seems to foster these local societies and considers them of great importance. In Madison they have a local society founded in 1871 which is still flourishing. The small-fruit growers in several localities have banded together for protection in the marketing of their crops, and the results have been most satisfactory. The point was especially emphasized that fruit growers in a locality should bury petty jealousies and make close combinations for the handling of their product. Much shrinkage can be saved in this way.

Wisconsin is particularly interested in plums, and plum culture was given considerable discussion. Again Minnesota has given Wisconsin the most important varieties. At one point in the discussion the president called for the "four best varieties for general culture." My note book shows that nearly every one who responded placed the Surprise at the head of their list. The Jewell Nursery Co.'s proposed cash prize of $1,000 for a new hardy plum aroused much interest and was thoroughly discussed several times. Prof. Sandsten, state horticulturist, said that the desired plum must come from crossing rather than from seedlings.

A glimpse of the apple exhibit at the Wisconsin meeting,—about one-third of the exhibit.

Mr. C. F. Hale, the well-known peach grower of Michigan, and Mr. A. V. Schermerhorn, of Illinois, contributed much to the interest of the session. Both of these gentlemen being practical fruit growers on a large scale spoke with much authority, especially on the subject of spraying, and were met with volleys of questions. Mr. Schermerhorn says that the dust spray is an absolute humbug as a fungicide. Mr. Hale said that he found the small grower generally fell down on the spraying proposition because he did not follow it up close enough to become thoroughly familiar with the requirements; as he put it, spraying is a preventive, not a cure, and must be intelligently persisted in. A lively tilt occurred over the question as to whether the plum curcullio could be defeated by spraying; the general opinion seemed to be that they could be destroyed in a large degree.

A spirited debate occurred over the McMahon apple and was participated in by nearly every member. McMahon is one of Wisconsin's best known seedlings and is well known in Minnesota, though not extensively grown. The general opinion seemed to be that although poor in quality and late in coming into bearing McMahon was still a valuable market variety owing to its fine appearance. One member said it was a dismal failure for a cold storage apple. In this discussion it developed that Wisconsin growers are not nearly as interested as we in seeking for winter varieties. They hold that we should stick to the fall varieties, as we cannot hope to compete with New York, Michigan and Missouri apples.

Prof. Blair, of the Illinois Experiment Station, has given special attention to the construction of small cold storage plants for the farmer, and delivered a very instructive illustrated lecture on the subject. A trial storage was built at a cost of $3,400, capacity 2,600 barrels; required sixty tons of ice, at a cost of $138; including interest, each barrel was charged 19 cents, pro-rated cost. Smaller storage houses could be built and maintained with a proportionate investment. By exhaustive experiment they have found that mineral wool has the highest insulating value, represented by 100 per cent, while cinders have a value of only 34 per cent; the combination of building paper and dead air spaces came about half way between in value, varying according to the number of cells used.

The entire staff of officers were re-elected, including T. E. Loope, president; George J. Kellogg, vice-president; F. Cranefield, secretary, and L. G. Kellogg, treasurer. An important revision was made in the constitution of the society, making the secretaryship appointive by the executive committee. The president, secretary and treasurer are designated as a board of managers to conduct the business of the society, subject to the executive committee, which is composed of a member from each congressional district.

THE AMERICAN FORESTRY CONGRESS.

PROF. SAMUEL B. GREEN, DELEGATE, ST. ANTHONY PARK.

The American Forestry Congress, which met in Washington, January 2nd to the 6th inclusive, was the most representative meeting of its kind that ever has been held in this country. The many interests which have previously been supposed to be diverse here came together and united in making plans which would work out harmoniously and to the best interest of all. In this convention were represented the lumbermen and the manufacturer of lumber; those who are striving for better results from and for the extension of irrigation systems; the sheep and the cattle men, whose competition for more pastures has often resulted in bloodshed; the mining interests, which need enormous quantities of timber in their mines; representatives of railroads, who are anxious as to the future supplies of timber for ties and other railroad purposes; the foresters, who are interested in all the problems which the foregoing interests represent, and to whom the foregoing interests look for some way of solving the difficulties which threaten them.

The convention was held in the National Rifles' Armory, with the exception of one session, which was held in the National Theatre and was addressed by President Roosevelt, J. J. Jusserand, ambassador from France, Howard Elliott, president of the Northern Pacific Railway Company, and F. E. Weyerhauser, president of the Weyerhauser Lumber Company. This session was the most notable one of the convention. The other sessions of the convention were devoted to the following subjects:

Importance of Public Forest Lands to Irrigation.
Lumber Industry and the Forests.
Importance of the Public Forest Lands to Grazing.
Railroads in Relation to the Forest.
Importance of Public Lands to Mining.
National and State Forest Policy.

Among the most interesting and representative addresses were those by the following parties:

J. B. Lippincott, Supervising Engineer, Reclamation Service, U. S. Geological Survey.

F. H. Newell, Chief Engineer, Reclamation Service, U. S. Geological Survey.

Guy E. Mitchell, Secretary, National Irrigation Association.

J. E. Defebaugh, Editor, American Lumberman.

John A. Dix, President Moose River Lumber Co. of New York.

John L. Kaul, President, Kaul Lumber Co. of Alabama.

Hon. Francis E. Warren, U. S. Senator from Wyoming.

Victor H. Beckman, Editor, Pacific Lumber Trade Journal.

M. C. Moorse, Secretary, National Slack Cooperage Manufacturers' Association.

George K. Smith, Secretary, National Lumber Manufacturers' Association.

Captain George P. Ahern, Chief, Philippine Bureau of Forestry.

John A. McCann, Editor, National Coopers' Journal.

E. S. Gosney, President, Arizona Woolgrowers' Association, Flagstaff, Ariz.

Fred P. Johnson, Secretary, National Live Stock Association.

B. L. Winchell, President, Chicago, Rock Island & Pacific Ry.

J. T. Richards, Chief Engineer, Maintenance of Way, Pa. R. R. System.

L. E. Johnson, President, Norfolk & Western Railway Co.

Hermann von Schrendk, Bureau of Forestry.

Prof. J. A. Holmes, State Geologist of North Carolina.

Seth Bullock, Supervisor, Black Hills Forest Reserve.

T. J. Grier, Superintendent, Homestake Mining Co., South Dakota.

F. A. Fenn, Supervisor, Forest Reserves in Idaho and Montana.

Overton W. Price, Associate Forester, Bureau of Forestery.

W. A. Richards, Commissioner, General Land Office.

Gifford Pinchot, Forester, U. S. Department of Agriculture.

Dr. J. T. Rothrock, of the Penn. Reservation Commission.

Geo. H. Maxwell, Executive Chairman, The National Irrigation Association.

Secretary Wilson presided at three sessions of the convention; in one of his addresses he said it was the most representative body of men that he had ever seen together. Students of forestry were present from all parts of the country. Yale Forestry School adjourned and met in Washington during the convention, and about sixty of their students were present most of the time. The sessions were largely attended, and there were present from 600 to 800.

The evenings were taken up with informal discussions at Hotel Shoreham, which were of much interest and attended almost exclusively by those interested in teaching the subject of forestry. At these meetings the forestry students were out in full force and showed deep interest in their chosen profession.

From the report received Pennsylvania seems to have come nearest to accomplishing the work outlined by its Forest Association than perhaps any other state. This state has now about 700,000 acres in its forest reserve. In order to provide rangers to care for this reserve they have established a forestry school at which twenty boys are now in attendance. Mr. Wirt, the head of this school, is a bright young man, a graduate of the Biltmore Forest Academy, whom I had the pleasure of being with for several weeks in Germany. The work he is doing is such as to command the respect of all who are interested in forestry. He is educating practical forest rangers.

As yet little has been done in most of the states in the way of forest preservation. Next to, and perhaps equal to Pennsylvania in these matters, would come New York State, which has a magnificently managed forest department, of which Col. Fox is the head.

Every one who attended the convention was impressed with the importance of forestry from these different points of view, and the result of the convention will undoubtedly be very helpful in formulating the forest policies of the different states, as well as of the national government.

Monsieur Jusserand made a very pleasant speech, and in refering to the growth of the forest he said that when he was a little boy his father took him out to see a newly planted forest, but he could not find the trees, because they were so small. He went back there a few years ago, and the trees couldn't see him, he appeared so small in comparison with them.

Irrigating interests are deeply mindful of the value of forest cover on the mountains in retarding the melting of the snow in the spring. Where vegetation is stripped off they have spring freshets, and the snow water passes off doing but little good, and at the time of the year when they need water the most they have none. In referring to this matter one speaker said that a laborer of his said it was better to have a little stimulant as you want it and as you go along, than to have a high old time once or twice a year.

In speaking about the time required for the growth of forests and of the necessity of this generation building for the generation that is to follow, President Roosevelt made the statement that, "It is a poor American who lives only for this generation."

ANNUAL MEETING, 1905, SOUTHERN MINNESOTA HORTICULTURAL SOCIETY.

L. P. H. HIGHBY, SECY., ALBERT LEA.

The twelfth annual meeting of the Southern Minnesota Society was held this year in Spring Valley, the county seat of Fillmore county. That we were in one of the best fruit regions of the state may be learned from the fact that fifty-four car loads, of 170 barrels a car, were shipped from this station the past season. It was stated by a reliable citizen of the county that the people of this section had come to grow as much fruit as they have as a direct result of the work done by the local horticultural society. The meetings were not as well attended as might have been expected, which regrettable fact can no doubt largely be attributed to the disagreeable weather.

The following program was rendered:

Wednesday, 1:30 p. m. Call to order by President O. W. Moore; report of delegates to other societies; report of Fruit and Seedlings Committees; report of the secretary; Minnesota's Advance in Horticulture and its Causes, by A. J. Philips, West Salem, Wis.; Growing Berries for Profit, H. F. Hanson, Albert Lea.

Evening Session. Address of Welcome, by the mayor of Spring Valley; response by J. C. Hawkins, Austin; president's annual address; remarks by visiting horticulturists; The Lowland Raspberry Apple, Clarence Wedge, Albert Lea.

Thursday Forenoon. Planting and Mulching the Strawberry Bed, R. G. Livingston, Spring Valley; The Honesty of the Nurseryman and the Tree Agent and the Product of the Trees Sold, J. A. Jensen, Rose Creek; The Apple, P. Clausen, Albert Lea; Planting and Care of the Asparagus Bed, O. W. Moore.

Thursday Afternoon. Spraying that Pays, E. M. Reeves, Waverly, Ia.; Spraying, O. W. Moore, Spring Valley; The Apple Orchard—Distances in Planting and Care of the Trees, S. D. Richardson, Winnebago City; Some Advice to Farmers on Planting the Home Grounds, by A. E. Bentz, Cresco, Ia.

Thursday Evening. Seedling Apples of Wisconsin and Minnesota—A Talk, with illustrations, A. J. Philips, West Salem, Wis.; The Future of the Southern Minnesota Horticultural Society. A discussion opened by J. C. Hawkins, Austin.

Friday Forenoon. "Horticultural Reminiscences along the Pacific Coast, or as I Saw It on the Fly," L. W. Allen, Spring Valley; Some Pointers on Growing Small Fruits, C. F. Gardner, Osage, Iowa; Election of Officers.

A question which received its share of attention was the distance in planting of apple trees, about which there always are many opinions. The prevailing idea was that fruit trees are generally planted too close. A good many favored planting close—about one rod each way—and then removing every other row later.

The subject of spraying received considerable attention, and the remarkable fact was brought out that the plum curculio is inclined to work more injury to the apple than to the plum, even where a plum and apple orchard are adjoining one another. Mr. Reeves, of Waverly, in his paper, contended that a considerable number of curculios could be killed by poison.

Mr. Philips, of Wisconsin, gave a very interesting talk on Seedling Apples of Wisconsin and Minnesota, and Mr. Patten, of Iowa, spoke of some of their later productions of his state.

Mr. Michener, of Fillmore county, who has a ten-acre orchard and who has harvested a good crop the past season, gave a very interesting talk on his experience in shipping. He had sold some 1,100 barrels this season and said that if all his orchard had been Duchess and Wealthy trees the yield would have been doubled. Like a good many other men with experience Mr. Michener believes in growing Duchess for the market, there being always a market for this fruit, owing to the fact that apples are not shipped in from other states in the season of the Duchess.

A good deal of time was devoted to a discussion of the subject "The Future of the Southern Minnesota Horticultural Society." It was on all sides conceded that the usefulness of the society could be very materially increased if we had some funds with which to carry on the work over and above what we now have, and it was decided to lay the matter before the executive committee of the state society at its next meeting.

Some of the visitors to the meeting were A. J. Philips, Wisconsin; A. E. Bentz, C. F. Gardner, C. G. Patten, H. G. Patten, of Iowa; and S. D. Richardson, of Winnebago City.

Officers were elected as follows:

President, A. W. Masse, Albert Lea.

Secretary and treasurer, F. W. Kimball, Austin.

Vice presidents, P. Clausen, Albert Lea; J. C. Hawkins, Austin; O. W. Moore, Spring Valley.

The next annual meeting will be held in Albert Lea in January, 1906.

$100,000 TO THE ORIGINATOR OF NEW FRUITS AND FLOWERS.—Luther Burbank, the famous agriculturist of California, has been awarded $100,000 by the Carnegie Institute for his successful work in scientific agricultural experiments. It will be paid to him in ten annual installments, to enable him to give up all other interests and devote himself to further agriculturals cience.

EXPERIMENTAL PLANTS FROM THE SOUTH DAKOTA STATION.—Prof. N. E. Hansen, horticulturist at the South Dakota Experiment Station, in a recent letter speaks of a large assortment of plants for experimental purposes that have been raised there and are now ready for distribution. They include many varieties of fruits and also ornamentals. He speaks especially of the Siberian Sand Thorn, valuable for its fruits, and Niobe Weeping Willow, both of Siberian origin. Those of our readers who are interested in this experimental work and desire to take part in it would do well to send to Prof. N. E. Hansen, Brookings, S. D., for a full list of the stock referred to.

VALUABLE PREMIUM BOOKS FOR OUR MEMBERS.—An exceedingly valuable list of books on practical horticulture is offered to our membership on the little pink folder, sent in connection with the membership ticket. This list contains all the works on horticulture issued by Prof. Samuel B. Green, of our state experiment station, and a number of smilar works by Prof. L. H. Bailey, Cornell University, New York, and by other well known authors. These books can be purchased at the price mentioned, sent postpaid, or be had without expense by securing new members for the horticultural society. We prefer the latter method as in that way we reach more people with the society literature, and that is one of the most important features of our work. Every member interested in these subjects should secure one or more of these books annually to add to his library.

Secretary's Corner.

TOP GRAFTING CHERRY ON PLUM.—Who has had experience in top-working the Cherry on Plum in this region, and what has been the success?

Please send a concise recital of your experience to the secretary.

HAVE YOU RENEWED YOUR MEMBERSHIP FOR 1905?—There are still a few who not having signified their intention to have their names taken from the membership roll it is taken for granted to be their purpose to continue members of the society, and they are receiving the monthly regularly. It is very important that the society roll should be completed as far as possible during the month of March, and we hope to hear from every member of the society as far as need be to bring about this desirable result. We cannot afford to lose any of the old members from the roll. The growing needs of the society demand the support of every one interested in the development of pomology in the state.

RED RIVER VALLEY HORTICULTURAL SOCIETY.—The annual meeting of this society was held at Crookston, Feb. 4th. There was a very good attendance, especially at the afternoon session, when some fifty ladies were present, enough to bring the number up to 125. Perhaps fifty were present at the morning session. An interesting program was rendered by the members in attendance. Mr. Wyman Elliot and Secretary Latham attended the meeting, and both took part on the program. The present membership of this young society is about 40. Under the efforts of Mr. T. A. Hoverstad, the secretary, the membership is steadily increasing. The old officers were all re-elected, Mr. F. T. Haseltine being president, and Mr. T. A. Hoverstad, secretary and treasurer. Reports from the Red River Valley indicate an increased interest in fruit growing, and especially in apple culture, and an encouraging degree of success with many experimenters.

HAS THE WINTER INJURED YOUR ORCHARD?—Conditions for wintering the orchard successfully have not been all that could be desired in all parts of Minnesota this winter. Forty degrees below zero has been reported from a number of places where apple trees are doing reasonable well, and thirty-five degrees below even from points in the southern part of the state. In the early part of the winter, the ground continued bare and became very dry, and there was some quite severe weather before snow came. Information from our members as to the condition of their orchards and fruit gardens at this time would be valuable to lay before our readers. Has the wood of last year's growth in the orchard discolored? How does the wood of raspberries not buried look? Any strawberries not covered at this time should certainly receive prompt attention, as there is great danger of injury during freezing and thawing in March.

PLANT PREMIUMS FOR OUR MEMBERS.—An especial feature of the work of the society is the distribution of plants of various sorts amongst our members for experimental purposes. A list of these is published in the little folder issued, and will also be found on the inside of the front cover of the magazine. Please note that applications for plant premiums must reach the secretary prior to April first. Quite a number are every year disappointed in receiving their premiums from the fact that their applications come too late.

All the various plants offered are, with most growers, of an experimental character, and much good should come from their distribution. The society is especially interested in the distribution of apple and plum seedlings, both for grafting and for the growing of new varieties of fruit.

No selection of premiums can be made until the membership fee is paid, and it is hoped that the full membership may be in and the premiums selected within the time specified.

NEW LEGISLATION REQUIRED BY THE HORTICULTURAL SOCIETY.—Bills are now pending before the State Legislature, having been introduced into both Houses, which if they become laws will increase the number of printed reports of the society from 4,000 to 5,000 annually, and the annual money appropriation of the society from the state from $2,000 to $3,000.

Many facts bearing upon the needs of the society in asking for this legislation have been recited to our members elsewhere. These increases are imperatively needed if the society is to go on with its work developing along the lines heretofore followed with such success, and we are assured of the hearty support of the membership in securing them. Many members have to our knowledge already communicated with the members of the Legislature from their respective districts in regard to these matters, urging the passage of these bills. Any others who have not as yet done so and would like to see the society prosper are urged to write at once to their representatives in both the House and Senate, very briefly, asking their support to these measures.

With a membership of 1,800, a library of 2,000 volumes and the work in many lines connected with the offices of the society, the association finds itself very much cramped by the present conditions of things; and the assistance which each individual member can give to the bringing about of an improvement in these conditions will contribute to that extent to the continued success and growth of the association, and the advancement of the purposes for which it exists, covering, as they do, the entire range of horticulture in the state.

LARGE MONEY PRIZES FOR PLUM AND CHERRY SEEDLINGS.—Private parties are following in the footsteps of the horticultural society in extending encouragement to the originators of new fruits. At the last annual meeting of our society Mr. C. M. Loring, of Minneapolis, offered a premium of $100, to be awarded to the originator of an improved variety of seedling plum according to conditions to be prescribed by the executive board of the society. There has been considerable correspondence as to these conditions, and they are practically decided upon and will be announced at an early date. To add still greater zest to this pursuit, the Jewell Nursery Company now comes forward with an offer of $1,000 for a new seedling plum of practically the same description as is required to secure the $100 prize above referred to. The exact details of this offer are not yet announced, but the fruit will certainly have to be something nice, and the tree productive and hardy, to win this prize, and it is possible that it will require a cross between the native American plum and the Japanese, Domestica or some other semi-hardy sort to secure the qualities demanded. That success along this line, in meeting the required conditions, is possible is the judgment of local plum experts who have considered the matter. While this award will not be made by the society, the judges selected will be admittedly as well qualified for the task as any in the northwest, being Messrs. Wyman Elliot, J. M. Underwood, Profs. N. E. Hansen and Samuel B. Green. Save plum seeds (and cherry seeds too, as the same amount is offered for a cherry seedling) of desirable sorts, and prepare to make crosses with whatever offers promise of successful results. You will find it a fascinating pursuit, if you win no money prize, and rejoice in this newly discovered means of wholesome enjoyment.

PROF. J. L. BUDD.
Late professor of horticulture, Iowa State Agricultural College,
Ames, Iowa.

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In Memoriam.

JOSEPH LANCASTER BUDD.

Died Dec. 20, 1904, aged 69 years.

Joseph Lancaster Budd was born near Peekskill on the Hudson, July 3, 1835. His boyhood days were spent on the home farm and in the schools of Westchester County. While yet a mere lad his parents moved to Sullivan County, in southern New York. His young manhood was spent in helping his father upon the farm and in teaching and attending school. He graduated from the Monticello Normal Institute, and under the tutorage of Professor Gallup and Gardener Rupold prepared to enter the sophomore year of Union College. At the moment of the realization of his ambition, parental obligation called him to lay aside all his cherished plans; his father became financially embarrassed and needed his aid. With a cheerful courage he gave the years which he had hoped to spend in college to this higher call of duty. It is thus that mortals are tested, and true men are made.

In 1857 he came to Illinois where he served for about two years as principal of the Rockford high school and tutor in mathematics in the Rockford Academy for boys. Following his natural inclination toward horticultural pursuits, he formed at this time a partnership with Mr. H. H. Fuller and embarked in the nursery business at Wheaton, Ill. He had been there but a year or so when he purchased a tract of land near Shellsburg, Iowa, and established the Benton County Nurseries, which were afterward to become so well known in the horticulture of Iowa. It was at Shellsburg that he first met Miss Sarah M. Breed, to whom he was married January 26, 1861, at Iowa City. Two children, a son and a daughter, blessed this union, both of whom are here today to mourn the loss of a kind and loving father.

Early in his career as orchardist and nurseryman the professor began to write for horticultural and agricultural journals. His election in 1873 as secretary of the Iowa State Horticultural Society was but the natural selection of the man best fitted for the place, and in 1876 when the college at Ames sought a man to take charge of the department of horticulture and forestry it did not take long for the board to decide to call Professor Budd to this important position.

The professor entered upon his duties March 1, 1877, and thereafter he was one of the makers of the college history. He was in the active service of the institution for nearly twenty-two years, or until January, 1899. At the time of his retirement he was made professor emeritus, the college considering it a high honor to continue his name on its faculty roll.

The professor brought to his work at Ames the rich experience of many years in field and nursery, an enthusiastic devotion to horticulture and horticultural advancement, and an abiding sympathy with student life and student aspirations. He impressed his enthusiasm and devotion upon the young men in his department. I heard an alumnus of the college say, in his address at a late alumni meeting in Des Moines, that he received his inspiration toward practical work in agricultural lines from the professor. This alumnus has lately been appointed Assistant Secretary of Agriculture at Washington.

It is by the product of his work that the worker is judged, and the work of our friend can stand that test. Professor Budd helped to turn toward leadership in horticulture many of the students who came under his instruction. Such men as John Craig, professor of horticulture of Cornell University; N. E. Hansen, professor of horticulture in the Agricultural College of South Dakota; Charles A. Keffer, the head of the horticultural department of Tennessee University; J. J. Vernon, of the Agricultural College of New Mexico; J. I. Schulte and P. H. Rolfs, prominent in the Agricultural Department of the national government; H. C. Irish of the Shaw Botanical Gardens of St. Louis; S. A. Beach, horticulturist of the State Experiment Station of New York and lately elected professor of horticulture in our own college; these and the long list of Ames graduates who are prominent in our state horticultural society bear evidence to the rich fruitage of the instructional side of Professor Budd's work.

As an investigator the professor has brought renown to himself and the college. The experimental work of his department foreshadowed the work of the experiment station. The station was not established until 1887. As early as 1882 the professor was searching eastern Europe and western Asia for hardy fruits with which to enrich our western horticulture. Of the many varieties imported and tested some have succeeded and are widely grown; others give promise of final successful adoption to our climatic conditions, while from others, by crossing, hardy varieties have been developed.

In the line of flowers a single Russian rose imported by Professor Budd has through its descendants given us a family of most beautiful roses, free from the diseases and parasites to which ordinary roses are subject.

The pioneers in every great work have many difficulties to encounter. They hew the way and furnish the outlook so that those that follow may know where to go and where not to go, what to do and what not to do. Professor Budd at the beginning of his experiments found the horticulture of the west in sore straits with no outlook for the future. He gave it hope and inspiration, and the future will give ample credit.

It was because of his worth as an investigator that Charles Downing bequeathed the horticultural department of the college his private library, which has proved an invaluable aid in horticultural research.

As a man of affairs, in the management of his department, Professor Budd had few equals. The government today is liberal in its appropriations for experimental work; the professor when he entered upon his duties at the college found his horticultural headquarters, to use his own words, "to consist of a small, low, wet, rotten, timbered cave." He had to make brick with very little straw, and it was only by wise planning, strict economy and the closest business oversight that he accomplished with the meagre means at his command those results which have brought honor to the college and lasting fame to himself.

The professor was always a ready and versatile writer. During the greater part of his life at the college he was horticultural editor of the "Register," a service which he continued after his retirement from college work.

He was secretary of the state horticultural society from 1873 to 1896 with the exception of the years 1886 to 1890, editing during this time twenty-one volumes of horticultural reports. As a contributor his pen was ever at the service of the agricultural and horticultural press of the west. In his retirement and as a fit ending to his busy life as a horticultural writer, he prepared and published in connection with Professor Hansen a "Horticultural Manual," the first volume of which is devoted to plant propagation and the second to systematic pomology. This work alone is sufficient to give the professor a lasting place in horticultural history.

As a man Professor Budd was kind, sympathetic, honest, honorable; as a friend he was loyal, helpful, inspiring; as a husband and father he was the personification of a high ideal. July 3, 1835—Dec. 20, 1904, lacking only a few months of three score years and ten. Within the compass of this time, which measures the natural span of man's earthly existence, was crowded a busy and useful life which commands our respect, our highest honor and our affectionate regard.

(Prof.) E. W. Stanton, Ames, Iowa.

The death at Phoenix, Ariz., of Professor Budd removes from the stage of action one of the greatest and best masters of horticulture, one of international reputation, and one who has carved a lofty and permanent place in the history of horticulture.

Professor Budd was truly a Columbus on the unchartered sea of western horticulture. His crew rebellious at times, he steadfastly pursued his course undisturbed by popular clamor, at peace in the serene consciousness that he was right. As a result he discovered rock-bound continents of truth upon which are now building temples defying the tooth of time. Some of these innovations in horticultural practice jarred at first upon the case-hardened sensibilities of commercial interests, but they have now become generally accepted by all true lovers of the gentle art and science of horticulture. He made application to horticultural practice of the great law laid down by DeCandolle that species of plants have not advanced one hundred miles north of their natural limits in historic times, although seeds have been carried northward by birds and other means; that it takes a period of 4,000 or 5,000 years or changements of form to modify the constitution of a plant so that it will support a greater degree of cold.

This principle is capable of wide application. Nurserymen have learned to be careful as to the source of their tree seeds. Raisers of apple seedlings begin to realize the futility of the attempt to adapt to the rigorous climate of the prairie northwest a race of apples dating back less than three centuries to the mild climate of England and France. Hence, from the stormy plains of Russia Professor Budd was a chief factor of introducing a race of the apple inured through countless centuries to a greater degree of cold, and the blood of this race, bred on the stormy steppes, is now giving rise to a new race of seedlings which has the greatest essential of all for the far north—perfect hardiness of plant.

Furthermore, it was shown that hardiness of a plant against cold could be imparted by crossing and hybridizing. This led to beginning the great work in breeding fruits now being so extensively carried on. The wonderful possibility of plant-breeding, the power of selection, that plants could be molded like clay in the hands of a potter, all these great seed thoughts he illumined and made alive and vital.

His was a versatile mind, receptive, quick to see and accept new light, like a lightning flash in quickness of perception. In his earlier days he had taught school, was a good geologist and had written excellent poetry; later on a Columbus and Edison combined in horticulture, a man of marked literary ability, a philosopher, a cool-headed man of affairs, a good financier of mature judgment, the very soul of honor and integrity, his word was as good as his bond. In all my years of close, friendly relations with my departed teacher, I never saw him excited or angry. He was cheerfulness personified, always looking on the sunny side of everything. It was a constant tonic to work with him.

Professor Budd was a wonderfully prolific writer, never hesitating for a thought or word, and always with a lesson to impart. He did this extra work as a labor of love, considering it as a means to reach the vast public outside the walls of his class room. So, week by week, for a generation past, he added line upon line and precept upon precept in the Weekly Iowa State Register until his circle of loyal friends grew so large that the work became too great for his declining strength. The present writer has tried for many years to make as complete a collection as possible of his writings, mindful of the fact that he was careless in keeping copies for himself. The spirit of optimism, of altruism, of public spirit, of unselfishness, of brotherly love, pervades and illumines all these writings. He esteemed one man as good as another and had a cordial greeting and word of cheer for every one.

As a teacher his great distinguishing characteristic was that he imparted deep and abiding enthusiasm for the work and developed the individuality of each one, not attempting to make them all after one model. Ever mindful of the fact that every man is a seedling, and no two are alike in characteristics, he used the pruning knife of keen, unerring judgment, and with a loving hand, so that each sapling could assume its natural habit of growth, cutting out only the aberrant shoots. Eminently practical above all things, yet he was a dreamer of dreams, high and noble, a dweller on the rock-foundation heights alone, with a majestic expanse of landscape unfolded before his view, while the ordinary workers in the Lord's garden dwelt in the foothills and narrow valleys far beneath. He was a seer and a prophet in many ways ahead of his time. Had his restless spirit, so eager for the public welfare, permitted him to conserve his strength more, he would perhaps still be in the land of living. As it is, he now sleeps the sleep of one who has labored long and earnestly in the Lord's vineyard, who has borne the heat and burden of the day, and now has gone home weary in the eventide "to wrap the drapery of his couch about him and lie down to pleasant dreams." His name and fame are secure, and Joseph Lancaster Budd will occupy an honored place in the Westminster Abbey of American Horticulture, a place in the hearts of men for those who have permanently enriched the cause for which they labored.

Reverently his pupil writes this little tribute in loving remembrance of his departed teacher. A true man among men was J. L. Budd, a man to whom the recording angel will come, as he did to Abou Ben Adhem, to point out his name as first on the roll of the Lord's beloved, because he loved his fellow men.

(Prof.) N. E. Hansen, Brookings, S. D.

ANENT THE FRUIT PROSPECTS.—The few notes appended fairly represent we think, the southern portion of the state and indicate a very hopeful situation in the fruit gardens and orchards of that section:

"I have been through the orchard and the standard varieties look all O. K. Raspberries will come out all O. K. if the temperature does not drop too low late. Strawberries that are covered look fresh and good. The prospects are very favorable for a crop of fruit."—W. J. TINGLEY, Withrow, Mar. 8.

"I find the N. W. Greening is killed by the last winter. Duchess, Patten's Greening, crabs, etc seem to have got through all right. Russian olive succeeds splendidly. Syringa Japonica also."—JOHN MCCALLUM, Barry, March 12.

"I have been looking over my orchard and nursery and find my trees all right to the last bud; only a few half hardy of foreign origin are injured, and they will go on the brush pile."-REV. JOHN B. KATZNER, Collegeville, Mar. 13.

"Apple trees are all in better condition than they were a year ago. Some varieties that showed severe discoloration of the pith of terminal limbs a year ago show only a slight discoloration now. Among these are Haas, Scott's Winter, Kaump, Talman Sweet, McMahon White, Avista, Repka Malenka, Northwestern Greening and some others. Raspberries and blackberries not covered show quite severe injury. Some canes killed, while others show vitality, and the prospect is for a partial crop from uncovered bushes."—DAVID SECOR, Winnebago City, March 16.

"All varieties of apples have wintered without any injury to tops. Northwestern Greening, Wolf River, Haas, Wealthy and others sound to the tip. The half hardy sorts, such as Talman Sweet, appear to be perfectly sound. I have a few trees of Jonathan that froze badly last year that appear all right now."

G. A. ANDERSON, Renville, March 24.

Trial Stations, 1904,

ANNUAL REPORTS.

CENTRAL TRIAL STATION.

PROF. SAMUEL B. GREEN, SUPT., ST. ANTHONY PARK.

The work of the horticultural division of the experiment station for 1904 has been along much the same line as in previous years. The bulletin on "Apples and Apple Growing in Minnesota," which was published the latter part of 1903, has met with a very good reception, and the edition is nearly exhausted, and every mail brings calls for it. This shows something of the great interest taken in the growing of fruits in this section.

This year we have published a bulletin giving the results of our experiments with potatoes. The object of these experiments has been to find out what varieties would resist potato rot and potato blight most successfully, also to give the results of experiments with Bordeaux mixture for the protection of the vines against blight and rot. In this experiment Bordeaux mixture was used in the dry as well as the wet form, and the results of the applications in the different ways are given in detail. It would require more space than is available in the "Horticulturist" to give the results of this trial, and it would seem hardly worth while to do so, since the bulletin can be obtained from the experiment station on application.

This division also has in progress a bulletin on ornamental planting in Minnesota, which it expects to have profusely illustrated with cuts of our best ornamental shrubs and herbaceous plants.

The work of the committee having in charge the award of the premium of $1,000 for a new, hardy apple has been continued during the past year, and report of its work will be found in this issue of the "Horticulturist." The work of testing these varieties is carried on at the experiment station and is a matter of much interest.

In connection with this general matter of testing seedlings, I have to report that this year we have set out a new seedling plum orchard, containing about 1,000 selected seedlings, all of which are from the Surprise, which I regard as the most promising variety from which to raise seedlings in hopes of getting something better than we now have. We have also added to our seedling apple orchard, but the amount of land available for this seedling work at the experiment station is very limited, and we cannot get what the work demands. The Board of Regents, however, have decided to ask the next legislature for additional land, which will undoubtedly give better facilities for this purpose. We have raised about 20,000 apple seedlings this year, most of which have come from the hardiest varieties growing at the experiment station.

Hole filled with shrubbery, at State Experiment Station.

The horticultural society should have better fruit land than we have here for the purpose of raising and testing seedlings, and I think that a move in this direction should be made as soon as may be.

Our apples produced rather a small crop this year, but the fruit was of very good quality. We have seeded down the Russian orchard to clover, with the intention of breaking it up again next year. I think it a good plan to occasionally seed down orchards with some leguminous crop, in order to add humus to the soil, so that the soil will be in better condition than it could possibly be in with continued cultivation without some grass or clover crop. Nevertheless, I believe the best treatment for our orchards is clean cultivation, with the exception of an occasional seeding down for the purpose named.

Our plums yielded a fairly good crop. The Surprise has given us fairly good crops for many years, and I regard it as one of our most profitable varieties for general cultivation. A variety received from Manitoba, which we know as Manitoba No. 1, fruited this year, and I am much pleased with it on account of its very early ripening, about August 15th, and the fruit, which is of good quality. The tree is dwarf, compact, and is exceedingly hardy.

We have continued our experiments in the testing of the different varieties of apples as adapted to the true Pyrus baccata stock, and have found no difficulty in getting good unions on this stock with most varieties, although some take to it better than others. We are offering a few apple trees, budded on true Pyrus baccata, at 20 cents each, the object being to have them distributed for general trial. We have found that root grafting on the Pyrus baccata did not give us good success, but that when budded they have given us a strong, vigorous growth.

White pine in "Forest Garden" at State Experiment Station, eighteen years old. Each tree numbered and rate of growth kept.

We have failed to get good results from the sand cherry, such as would warrant us in continuing growing it in large quantities. We have grown perhaps 8,000 or 10,000 seedlings of this plant, and among them have found varieties that are productive, but these plants are badly injured by the monila, which causes the fruit to rot when it is about half grown. This wild fruit may be, and undoubtedly is, of some advantage in the drier sections of the west, but it is doubtful if it is worth while to put much time on it here. I am inclined to think that the native plum is a much more promising field for development than anything in the line of the sand cherry.

Among strawberries that have done especially well with us are Johnson's Early and Thompson's Earliest, of the early kinds. Johnson's Early is at least a week earlier than any other variety that we grew the past season, and produced a few pickings of very good berries.

The Splendid has again proven itself a variety well worth continuing on our fruit list. The Sample has done well, so has Pocomoke and Bride's Pride. A variety called North Pole, sent out by J. W. Millet, of Bismarck, North Dakota, was exceedingly productive and bids fair to be a variety of considerable merit.

Among raspberries the Minnetonka Ironclad is one of the most productive that we fruited in 1904.

Red cedar, white and Norwegian pine in "Forest Garden," at State Experiment Station.

About eight years ago we raised a nice lot of seedlings of the Colorado blue spruce, and this is apparently perfectly hardy and satisfactory, and some of the seedlings are of a delightful blue color, which makes them conspicuous and of real value in livening up groups of evergreens, especially in winter, when their light colored foliage is in contrast with the darker foliage of our ordinary pines and spruces.

The severe winter of 1903-4 did very little injury to our forest garden, with the exception of the injury that it caused to the bull, or heavy wooded, pine. Some forms of this tree are probably the hardiest pines that we have in cultivation, while others may be quite tender. We supposed that we had obtained seed of the hardiest form, which is that grown at high altitudes in Colorado and in western Nebraska, but our plants from this seed were so badly injured last winter that we probably lost nearly half of those growing in the forest garden. I believe this injury shows that the seed which we supposed was of the hardier forms came from some mild section, as, for instance, the western slope of the Rockys, where the climate is quite mild, and I do not believe that it is a sufficient reason for discarding this evergreen, which I think is extremely hardy and useful when the stock of it is obtained from the best sources.

Our experience with the lawns about the campus has led me to believe that the best practice for keeping up the lawns here is to apply slaughter house tankage, containing a high per cent of nitrogen, at the rate of 1,000 lbs. per acre, putting it on as soon as the grass starts in the spring; and where lawns are in poor condition in addition to this put on about an inch of fine, rich loam. We have found that the general use of stable manure on our lawns not only makes them unsightly in winter, but frequently results in injury to them where the manure has not been fully decayed and lies in lumps. I would not be understood, however, as recommending this for general use on farms where there is a plentiful supply of fine, well decayed material that can give no trouble, but for general use on city and park lawns it will often be found that this is the cheapest as well as the most satisfactory method in practice.

The piece of land on which we have raised onions for eighteen consecutive years, gave us a good crop again this year, yielding at the rate of about 700 bushels per acre. Our practice with this piece of land is to plow it in autumn, as soon as the crop is out of the way, turning in a good coat of well rotted manure, and in the spring disc the land and sow it as soon as the soil can be worked, paying much attention to getting the seed in early.

The Beta grape, which we have referred to in previous reports, was left on the trellis during last winter, which was almost unprecedented for its severity. These vines had no protection whatever. They were pruned in the early spring and bore a good heavy crop of fruit and were apparently uninjured in any way by their exposure. While this fruit is not of first class quality, yet it is sufficiently good to be extremely useful both for dessert purposes and for cooking on the average Minnesota farm. We have raised several hundred seedlings of it, one of which we have selected for propagation, as we believe it is rather better in quality than the Beta.

MONTEVIDEO TRIAL STATION.

LYCURGUS R. MOYER, SUPT.

Nomenclature.—The carelessness of nurserymen as well as the want of system in horticultural nomenclature is one of the evils that add materially to the cares of one who is experimenting with the newer shrubs and plants. It is not many years ago since we ordered the Stag-Horn Sumac (Rhus typhina) from a nurseryman in Wisconsin, but after growing the shrub that he sent us for a number of years we found it to be a Red-Berried Elder (Sambucus pubens). This was a fraud, for the nurseryman must have known better. A couple of years ago we ordered from a nurseryman in Nebraska, who is prominent and well known, a climbing honeysuckle called by him in his catalog Lonicera Belgica, but on growing it for a year or two we found it to be Lonicera sempervirens. It turned out to be a desirable plant and one of the best climbers that we have in our collection; but why did not the nurseryman sell it under its proper name? The same nurseryman sent us the common wild clematis (Clematis Virginiana) in the place of the Clematis paniculata that we ordered. Of course this was a disappointment, for the wild clematis was already very abundant on our grounds.

A St. Paul nurseryman sent us a Phildelphus when we ordered from him a Syringa, thinking that we were to have a new lilac; but perhaps he might be pardoned for this, inasmuch as it is not long since that we heard a learned professor speaking before this society confuse the names of these shrubs in the same way. Of course the professor knew well enough that a syringa is a lilac bush, but it was only a case of his "talking down" to his audience. Since the publication of Bailey's Cyclopædia of Horticulture, wherein all the plants, trees and shrubs ordinarily cultivated are carefully described, there is really no excuse for not selling these things under their true names. This society has also been guilty of not adopting and using the standard nomenclature. Not many years ago the American Pomological Society adopted a standard nomenclature for fruit, and our favorite apple, the Duchess of Oldenburg, appeared on their list as the Oldenburg, but by a piece of provincialism this society decided to call the tree the Duchess instead of the Oldenburg. The same tree is known in Canada and in other states as the Oldenburg. It is perhaps too late now to change our local name, but it would certainly save much trouble and prevent much disappointment and loss of money if there were but one standard name for any tree, fruit or plant in general use among nurserymen. Perhaps this society ought to move for a reform in this particular and advocate the enactment of a law requiring all trees, shrubs and plants to be sold under their true names.

The Fruit Garden.—The Russian apple trees, which were mostly obtained from the Iowa Agricultural College some ten or twelve years, have all come into bearing. The result has been something of a disappointment, and while the garden would have been more productive had it been planted to Oldenburg and Wealthy some useful lessons may still be obtained from it.

The Hibernal is perhaps the best apple among those set out at that time; it, however, suffered somewhat during the cold weather last winter. On our grounds it does not seem to have been so very much hardier than the Wealthy.

The Blushed Calville, which, notwithstanding its name, is an entirely white apple, is a fruit of excellent quality, ripening about two weeks ahead of the Oldenburg. A few trees of it ought to be in every fruit garden. It is, however, so easily bruised and so poor a keeper that it never will become profitable as a market apple. For family use in July and August we know of nothing finer.

Volga Anis and the apple that we received as No. 984 appear to be identical and are now known as Anis. It is a beautiful, small apple of excellent quality, ripening in the early part of September. For table use it is very fine. It is not a heavy bearer, but one or two trees of it will not be amiss in any fruit garden. It is too small for market purposes. No. 322 appears to be a seedling of the Anis and is an apple of much of the same appearance and quality.

Another tree received by us as Prosart's Native has come into bearing and produces a large yellow apple ripening in November. It appears to be a valuable fruit; but Prof. Hanson has identified it as being the Antonovka, a well known sort. It appears to be a promising fruit and was the object of much attention at the county fair.

No. 1, Simbrisk, is a large, striped apple of fair quality, ripening in September. It shows some blight and will probably not be cultivated to any great extent.

No. 242 is a large yellow, sour apple, rather coarse and of quality not much better than the Hibernal; ripening in October. It is a very poor keeper and soon decays at the core.

Anisette is a fine apple but appears to be identical with the Oldenburg. Cinnaman Pine is a heavy bearer, but the apples are small, too small to be marketable. Where there are not other hardy trees it might be well enough to plant it.

Ostrekoff, 4M, is a large yellow apple, slightly sour, of good keeping quality and, therefore, valuable. The trees seem to be very hardy and quite free from blight. It seems to be the best keeper among the Russians.

The Peerless has come into bearing and produces well. The apples are of good quality, and the tree appears to be the most healthy of all in the garden.

Esteline has also come into bearing, but the apples this year were rather under size, and the fruit not of so good a quality as we had expected. It ripens in October and does not seem to be a good keeper.

Plums were a fair crop, and among these the Cheney gave excellent satisfaction, producing a large crop of excellent plums. Stoddard did very well indeed, and Rollingstone gave us a fine crop of excellent plums. De Soto produced heavily, but the plums were rather undersized. Wolf rotted badly.

The Russian pear trees are nearly dead from blight.

Flower Garden and Lawn.—For early spring flowers, tulips are found to be by us about as satisfactory as anything that we can plant. We plant the bulbs as early in the autumn as they can be procured and mulch them slightly when cold weather sets in. Treated in this way they grow for several years without being disturbed. When the tulips are gone the shrub border will be in bloom, so that herbaceous plants are not so much needed. The earliest shrub to bloom is the little Siberian Almond (Prunus nana). This is soon followed by the Caraganas. We have three species of these at the station, C. pygmæ, C. frutescens and C. arborescens. These are all desirable and produce a fine show of yellow flowers. The lilacs will follow, the several varieties of Syringa vulgaris being the first to bloom. These will be followed by Syringa Persica, and some two weeks later by the flowers of Syringa Josikæa, Syringa Villosa and Syringa Japonica. It is quite important to plant these last three species of lilacs in a collection, for it prolongs the season of bloom to some three or four weeks.

The Philadelphuses will begin to bloom about the first of June, and by planting each of the varieties offered by nurserymen the season of bloom will extend to some three or four weeks. They seem to all be hardy at Montevideo and extremely desirable.

Several species of Spiræa come into bloom in May, the variety known as Van Houttii being the most showy and desirable of the spring bloomers.

Another early shrub to bloom is the Juneberry. This may be had in several varieties, from the dwarf to the tree-like. Their names will be a puzzle to the most expert botanists, but the soft, velvety, early leaves and the delicate white flowers are very attractive.

With the coming in of June we have Snowballs and several other species of Viburnum in bloom, including the High Bush Cranberry, which on account of its fine flowers and showy fruit is perhaps the most desirable among them all.

The Peonies will now be in their glory, and by planting several varieties their season may be prolonged for several weeks. It is well to cut the flowers frequently and give them away. In fact, it is a good rule in raising flowers to keep them well cut. In order to have them you must give them away, however paradoxical it may sound. When the flowers are removed from the garden plant, it instinctively produces others in attempts to ripen seeds. As a rule, it is not desirable that perennial plants be allowed to ripen seeds, for after the seed is produced the root has a tendency to decay and die.

The garden Roses will come in with the Peonies, and by having several varieties the flowers may be had for some time. Nearly every variety requires winter protection of some sort. We usually bury them up with earth. Rosa Rugosa is a thrifty, hardy shrub and needs no protection whatever. It is not necessary to cultivate it in a bed in the garden the way we have to do with other roses, but it may be placed in the hardy shrub border, where by reason of its shiny, glossy leaves it will be an object of interest throughout the summer.

For cut flowers in the latter part of the summer we plant a large bed of Gladioli. We find that they bloom the best after being cut and placed in the vases of water. When the frost has killed the leaves in the autumn we dig up the bulbs and store them in grape baskets and boxes in a dry, warm cellar.

We find the Dahlia to be an excellent plant for fall use. By planting several species one may have their showy flowers for a long time. When the frost has cut down the tops the tubers should be dug up and, after becoming thoroughly dry, stored in dry sand in the cellar. We find that most of our cellars in western Minnesota are so dry that the tubers shrivel up more or less unless buried in sand or in dry earth.

Among the midsummer perennial plants nothing gives us more satisfaction than the tall blue larkspurs. When once established they need no further attention from year to year other than to mulch the ground during the winter.

Among large growing shrubs we get much satisfaction from the Bush Honeysuckle, the hardy Catalpa, the Russian Olive and the

Kentucky Coffee Tree. The European Mountain Ash also succeeds well if no effort is made to make it assume a tree-like shape. It should be allowed to sprout freely from the roots.

Among hardy climbers we find Lonicera sempervirens to be very desirable. It blooms throughout the season. Lonicera Sullivantii should be planted, too, for its showy, glossy leaves and its bright red berries.

Forestry.—A forestry plantation of about five acres has been very successful. The best trees are natives, such as elms, green ash and box elders. All the leading varieties of Russian poplars have been tested at the station and in the prairie grove, and they have all disastrously failed. It seems almost unnecessary to refer to these poplars again, as their failure has been very general wherever tried; but only last spring a leading agricultural journal in this state was advocating their planting on new farms for windbreaks.

About nine years ago the Bureau of Forestry at Washington, then in charge of Dr. Fernow, sent us eight thousand pine seedlings. These were planted on two acres of rather dry, light prairie land on which wheat had been grown for several years. We were directed to set out the seedlings two feet apart each way, alternating the pines with deciduous trees. We made the rows four feet apart and planted part of the pines with deciduous tree seedlings, part of them with alternate plantings of Wolf berry and part of them with only the pine trees. The pure culture of pine has done by far the best. The trees received but ordinary cultivation and no protection other than one row of willows along the west side. The Scotch pines have done the best and now average from six to eight feet in height. The Austrian pines have made about half as much growth, while Pinus ponderosa occupies a position between the two. A larger per cent of Pinus ponderosa was lost in planting. Fully ninety per cent of the Scotch pines are still alive, and the plantation taken as a whole is a marked success. It will become a prominent feature in the landscape of that neighborhood very soon.

Mr. C. S. Harrison (Neb.): I think you cannot do too much for your trial stations; a great deal depends on them. I have an experiment station at York, and they pay me the enormous salary of $20 a year. I have fifty varieties of lilacs, and they do very well. I want to call attention to the Viburnum lentatum. That does well in Manitoba. You cannot plant too many of the viburnums, or high bush cranberry. Prof. Green has been making a special effort to get a more prolific variety. Of lilacs, or syringas, I have secured fifty kinds. The oblatus is ten days earlier than the vulgaris. We want to work along this line and induce the farmers to fix up. We have a great many things that are standard, and we can depend on them. I was surprised on visiting Manitoba to find so many things that we consider tender that are doing splendidly there. The state ought to get everything that will grow in this latitude and hold fast to that which is good.

Prof. Hansen (S. D.): Syringa is the botanical name of the genus to which all the lilacs belong; the common lilac is Syringa vulgaris. The common name of the mock orange, or Philadelphus, is syringa. This double use of the word syringa causes a little confusion.

Mr. C. W. Merritt: It is news to me that the syringa is a lilac bush. Is the high bush cranberry a lilac?

Judge Moyer: The high bush cranberry is a snowball. The snowball was produced by cultivation and does not produce seeds. The syringa is a lilac; all the lilacs are syringas.

Mr. Gardner (Ia.): I understand Mr. Moyer's brother has a valuable blue plum, and I would like to have him tell us about it.

Judge Moyer: My brother has a blue plum which he got from Storrs and Harrison a few years ago. He grafted it on the wild plum, and it is doing very well. I do not know the name of it. I think it lived through last winter.

Mr. Kenney: I used to have a hardy California plum like that, but it was killed down.

Judge Moyer: Ours killed down a little, but it is now twenty feet high and is quite hardy.

EXCELSIOR TRIAL STATION.

A. B. LYMAN, SUPT.

The winter of 1903-4 was a severe one, yet the injury to fruit trees of our hardy varieties was slight because the trees went into winter quarters in such fine shape the previous fall. Had we had the past winter with the trees in as soft a condition as they were a few falls ago, we dare say that injury would have been widespread.

Will the 1903-4 winter call a halt to the planting of tender varieties like Ben Davis, Mann, Jonathan, Gano, etc.? We know of one party that had planted largely of these varieties. He is not a member of this society, and when he found his trees all dead last spring he concluded that apples couldn't be grown in Minnesota. Why is it that so many are not willing to begin where early planters left off but must learn the whole lesson for themselves?

A great many new orchards were set last spring, many by beginners in horticulture, yet the largest plantings were by those of experience in apple growing. The varieties set were largely those of Wealthy, Duchess, Patten's Greening, etc.

Spraying is becoming more general, and as a result apples are of better quality.

Storms were very destructive the past summer. Early apples were blown off more than the late apples. More Wealthys were marketed than of any other variety, and at the time the Wealthys ripened and begun to fall there was too great a tendency to crowd the market. Those that were hand picked just at the right time and handled with care kept nicely for some time, and a local market took them at better prices than were obtained earlier.

Cherry trees were greatly injured the past winter. Everything killed outside the Compass, and we had all the leading varieties except the Homer. However, we planted a number of Homer last spring and hope they will do better. The injury was not in the root, they killed to the snow line. Wasn't the injury largely due to a weak condition the trees were in because of a foliage disease the previous summer?

Plums were fairly productive this season. A great many have planted their plum trees in a certain form recommended by glib tree agents who want to sell a great many trees for a small space of ground. As a result the trees are too close together. The ground grows up to sod, the fruit is of poor quality, and the farmer gets discouraged and grubs them out. Had he planted them sixteen to twenty feet apart and kept them well cultivated the results would have been different.

Apple seed that we planted last spring grew finely, but of plum pits that were saved in the usual way and allowed to freeze for months few out of thousands grew. The pits were planted in the spring in good, moist soil, and the soil was kept moist by frequent surface cultivating. We do not know where the trouble lay—they simply refused to grow. The larger part of the pits seem all right, and perhaps they will grow the next spring.

Last spring we set several thousand Pyrus baccata seedlings that we received from Prof. N. E. Hansen. They were small but grew finely and were large enough to bud in July and August. The buds took nicely, and we are much pleased with the behavior of these trees. We also grafted some trees to the Milwaukee from scions we received from Mr. A. D. Leach. This variety is a good grower and may prove of value as a winter apple.

We fruited this year the Gideon's Best, Peter and Wealthy and believe they are all the same variety.

We have the last few years reported the Martha crab a failure as a fruit producer, but a fine grower of bloom. We see no reason for continuing this variety on the fruit list. We think great harm has already been done the apple interest by recommending the Martha for general planting.

The Okabena apple is making a good record. The tree is hardy and productive, and the fruit is a good market apple which ripens just at the right time to fill in between Duchess and Wealthy.

Our Wealthy seedlings show no sign of injury because of the past winter. Some of the late varieties we think will prove of value to the apple interest of the northwest.

MINNESOTA CITY TRIAL STATION.

O. M. LORD, SUPT.

Apples.—I have experimented with apples for more than fifty years, my first effort was with 100 Michigan trees, which only lived two or three years. I then tried fifty northern Illinois kinds; they all died. I then planted 100 from the seed, trees grown here; they lived much longer than the others, but the fruit was all fall and summer, and much of it worthless.

Some of the kinds I have experimented with are given below. Red Astrachan, Pewaukee, Plumb's Cider, Fameuse, Walbridge, Red Warrior, Cresco, twelve kinds of Russians from Tuttle; also Golden Russett, Peach, Ben Davis, Soiree, Willow Twig, Wine Sap, Shockly, Kately Sweet, Utter's, St. Lawrence, Rollin's Prolific and Pippin, Sops of Wine, Windsor Chief, Wrights, Bellflower.

I have now in bearing several seedlings of the Wealthy that promise very well; also the Hibernal, Gideon's No. 6, Longfield, McMahon, Duchess, Holt, Wealthy, Anisim, Kline, Early Strawberry, six Thomson's Seedlings, Northwestern Greening, Okabena, University, Patten's Greening, Utter's Red and some seedlings of unknown origin. I have had more and better apples from the Wealthy trees than all others put together, and if I had planted none but Wealthy would have been relieved of much work and some money uselessly spent.

Plums.—Plums were a large crop all over the state, and prices were low, about $1.00 per bushel for the best. There has been a marked change in the quality of wild plums in the last few years. The Miner, the De Soto, the Cheney, etc., have given place to the Surprise, the Brittlewood, the Free Silver and others of large size and good quality. The plum curculio was not as prevalent as usual; no plums having been borne for two years before, it had no opportunity to increase. The gouger adapted itself to apples in the absence of plums, and in some places it was quite prevalent.

Among those varieties that made the best showing this year were the Free Silver, Wittman's No. 1, Surprise, Wolf, Ocheeda, Wyant, Comfort, Stoddard and Gaylord. The Cheney was bitter and small. The Rollingstone, one of the best in a series of years, was almost tasteless. The De Soto was not harvested; it was late, small and worthless. Why this was so it is difficult to tell. We may say it was a peculiarity of the season, which will come as near the truth as any other reason.

A few plums of the Miner, Keeper, Wittman's No. 2, Moreman, Viking, Hunt and Brittlewood, did fairly well. The Odegard only bore where grafted on sand cherry stocks, and when nearly mature dried upon the trees. The crop of Ames' Hybrid was moderate, but the trees looked fine.

In looking over the whole ground, there is as much offered in the cultivation of plums as of any other fruit, and when we contrast those of today with the best we had twenty years ago we may well feel proud of our success. The product of one year is not a sample of what the tree may do. It is therefore well to try seedlings for a longer time. There was much discussion a few years ago in regard to having trees on their own roots. The trees on their own roots will live longer, but they will not bear so quickly nor so much as grafted trees.

Blackberries.—About ten years ago I got 100 blackberry plants of Samuel Avery, of Champaign, Ill. They were named the Snyder. I cultivated them for five years without covering and had an abundance of fruit. Then they were killed to the ground. Since then I have covered every year. I have also grown the Ancient Briton, which is a little later and on my ground superior to the Snyder. I have also grown the Badger for several years, which I regard fully equal to the Snyder. I met with no success in trying to grow the Lawton. I have also the Rathbun, which is giving good satisfaction. It does not sprout but reproduces from the tips, like black raspberries.

Currants.—Currants have made a good crop every year. I prefer the old Red Dutch. I have the White and the North Star, the Long Bunch Holland, the Cherry and two or three others that bear more or less.

Gooseberries.—I have tried several kinds; the Pearl does the best and generally gives a good crop.

Cherries.—I have had thirty kinds, but only three kinds have borne so as to be remunerative. I have some trees now nearly dead with old age that have not borne a quart of fruit. The Double Natta and the Wragg have done very well.

Red Raspberries.—I have grown them for forty years or more, the old Philadelphia being the first. I did not cover the vines, but was very successful with them for several years. The Caroline and the Clark were tried three or four years without much success. The Delaware was grown several years and did very well. Cuthbert has proved reliable and profitable. The Loudon is one of the best. Henrietta, Reliance, Marlboro and Miller are not reliable.

Black Raspberries.—The Tyler, Muskingum, Nemaha, Conrath, Mammoth Cluster, Seneca, Davidson's Thornless, Ohio. The Shaffer and the Columbian hybrids do very well. The Gregg has been cultivated all this time and is considered most reliable.

Strawberries.—The country generally was credited with a good crop, but the carrying trade of late years has so affected the market that a small space does not change the conditions or materially affect the price. Strawberries at ten cents per box will usually pay a big price on the labor. For the last few years I have disposed of mine by allowing outsiders to pick and pay for what they carried away in their own packages, thus saving looking after pickers, the boxes and markets, usually charging them two cents less than the market price. This plan has worked well for a small area and where I am situated. Bederwood and Warfield did well as usual. Senator Dunlap did the best of all; its roots seem to penetrate deeper than those of other varieties, and they do not winter-kill nor suffer with drouth. I have grown the Mary for several years and considered them full as hardy as the average. I put last year two rows of them between the Dunlaps and under the same conditions they killed, while the Dunlaps were entirely unhurt. The Joe Robbin, Lloyd, New York, Brandywine and Walker were killed or injured so as to bear no fruit. From my experience for a reliable crop, for a series of years, I would depend on Bederwood and Warfield, and Senator Dunlap. I have tested for several years, sometimes with good success, the Jessie, Princess, Wilson, Greenville, Sharpless, Manchester, Capt. Jack, Cumberland, Hood, Lovett, Gardiner, Princeton Chief, Wm. Belt, Michaels, Splendid, Babcock, Parker Earle, Marshall.

Mr. Van Ness: I am glad to hear one man speak in praise of the Loudon raspberry. I heard it cried down yesterday, and it grieved me very much. It is productive, and it will stand the winter. My neighbors at Bloomington will bear me out in that statement. I have grown a variety of raspberries; I find the Cuthbert is similar to the Loudon, but it has to be protected in winter. The Loudon has stood the winter very well, and I think it ought to have a little more praise.

Mr. Lord: If you will give the Loudon good culture and plenty of manure, and take good care of it generally, it will produce more and better berries than almost any other variety. There are varieties that never winter-kill, they produce abundantly, but the berries are insipid. A person that had tasted the Loudon would not look at them.

Mr. Elliot: You said the Marlboro is not reliable on sandy soil?

Mr. Lord: No.

Mr. Elliot: In the Minnetonka district it is one of the most reliable we have.

Mr. Lord: That may be true. There is a man within a mile of me that cannot grow a certain kind of strawbery that I grow, however, with marked success. There is a great deal of difference in soil and climate.

Mr. J. C. Hawkins: In regard to plums—how is the Brittlewood in regard to bearing?

Mr. Lord: With me it does not do well at all.

Mr. Hawkins: Perhaps you have not got it true?

Mr. Lord: I got it from Father Harris.

Mr. Seth Kenney: You spoke of the Rathbun blackberry—do you cultivate that?

Mr. Lord: I have a very few, indeed; I do not cultivate much.

Mr. Kenney: Are they as hardy as some of the others?

Mr. Lord: They are not as hardy as the Ancient Briton or the Snyder, but they are an excellent berry.

OWATONNA TRIAL STATION.

THOS. E. CASHMAN, SUPT.

Owing to the fact that the work at the trial station at Owatonna this season has been confined pretty much to cutting out worthless trees and thinning out the others to relieve the crowded condition of the grounds, my report will be necessarily brief. Fully three-fourths of the trees of a year ago have been cut out and burned, leaving only the varieties showing some promise. The late lamented Mr. Dartt, in his anxiety for quick results in fruit, practiced girdling to a considerable degree, and while it resulted in a quicker show of fruit the trees showed but slight development. I have discontinued girdling for the present and aided by the propitious weather of the past season and the better opportunity for cultivation through the thinning out of the trees, have encouraged a vigorous and satisfactory growth.

We are handicapped for further experimentation by the limited grounds allowed us for planting. The present space originally set aside is growing every tree it can take care of, and I have been obliged to extend the experimental work to our own nursery grounds.

There are a large number of very promising varieties at this experiment station, but all will not come into bearing for some time. Probably the best of the new varieties at the station is the Phoenix No. 50. It shows great promise as a nursery tree, is very hardy, and a vigorous and upright grower, and the fruit is of a very good quality and a good keeper.

Notwithstanding the severity of last winter, nearly all the seedlings at the station came out this spring (1904) without even the loss of a terminal bud. This fact proves that they are hardy, but it will take at least two years more to test the bearing qualities of all the trees and the merits of the fruit.

PLEASANT MOUNDS TRIAL STATION.

J. S. PARKS, SUPT., AMBOY.

The condition of fruit trees for going into winter is not very favorable; ground is now very dry, and trees have not made a healthy growth; they appear weak from last season's experience with blight and scab, and fruit buds scarce. A few varieties of apples fruited well, with nice smooth fruit, with no signs of scab—and no spraying was used. More than half of the varieties of apples did not bear a specimen of fruit.

Our experience in top-working apple trees the last two years was not at all encouraging except what were put on Hibernal and Virginia crab. Nearly everything on Whitney No. 20, Duchess, Haas, Walbridge, Saxton and a score of seedling trees have failed from some cause.

Our success with top-working plums was very satisfactory this season. We got a choice lot of scions from Dewain Cook and other sources, and nearly every graft grew finely. In most cases they were put on small trees about four feet from the ground, expecting to make the whole top of the grafted variety.

Our two-year-old seedling apple trees from seed of Talman Sweet, supposed to be fertilized by Wolf River, have blighted considerably. The trees with a thick, large leaf, resembling the Wolf River, have shown no signs of blight and have made a good growth, while those resembling the Talman Sweet have nearly all died to the ground. Several varieties of shrubs and trees from other states are being tested as to hardiness and adaptability to our locality, on which we will report hereafter.

SAUK RAPIDS TRIAL STATION.

MRS. JENNIE STAGER, SUPT.

Our strawberries gave us a fine crop this year. Warfield fertilized by Bederwood still gives us the greatest amount of fruit to the acre. The Clyde bore very large berries and was very prolific but would only do for a near market. Brandywine was the largest berry we raised; in fact, every one who saw them was astonished at their size, but they ripen very unevenly and not many to the plant; still being so large they pay us to raise them.

Currants and gooseberries bore very poorly with the exception of Pearl (a new variety with me), which gave a very good showing, being quite large and having no signs of mildew on the fruit or bush. Red raspberries gave us an exceedingly good crop, especially Turner and Columbian. Gregg, black raspberry, was quite well loaded but smaller than usual.

All of our Russian cherries, with few exceptions, winter-killed. As they have lived through a number of severer winters I am at a loss to know what killed them. Some of the Wragg and Homer came out all right, as well as the Compass. The two former did not fruit, but Compass was loaded with fruit which rotted before half ripe. Somehow it seemed to be a hard winter for cherries.

Plums were plentiful, but I was obliged to gather them before quite ripe, or they rotted. As the trees had been well sprayed, why did the plums rot? We had a good crop of Wealthys, some extra large Antonovkas, and our Sweet Russets were very large compared to what they generally are, but most of those trees that were loaded with apples last year had no fruit this. They made a fine growth. Although we lost about a dozen of apple and plum trees through high winds, none were winter-killed.

We had an enormous quantity of buffalo berries, which we made into jelly, of a beautiful color, and in my opinion of as nice a taste as currant jelly; certainly it sold as well. And there was one great advantage—we had to fight no insects, as we do on the currant; and as they are both hardy and ornamental I should advise more planting of them.

Most of our flowering shrubs were literally covered with blossoms, as were also our roses. Princess Adelaide, a pink moss rose, had shoots from eight to ten feet high and were covered with clusters of large, mossy, pink roses, while a great many of the roses bloomed at intervals until September.

Pæonies made a splendid showing. At least a dozen received from C. G. Harrison, of York, Nebr., and planted in the spring, blossomed, giving us some new and beautiful kinds. Of course we expect they will be much larger and finer when well established.

All of our evergreens of different varieties lived through the winter and have made an exceptional growth this year with the exception of Pyramidalis arbor vitæ. Most of those up to five feet high killed down to the ground. But with all our drawbacks more fruit is planted around this section of the country every year, as the people are finding out that getting the right kind of plants, from reliable nurseries, and taking the right kind of care of them, no one need be without fruit.

WEST CONCORD TRIAL STATION.

FRED COWLES, SUPT.

Although the past winter (1903-4) was a very severe one it did but little damage compared to what we thought at the opening of spring. Most varieties of apples bore a fair crop.

Hibernal bore Heavily the previous season, but bore nothing this season. We do not think this was due to injury the past season, as the trees seemed to be perfectly healthy.

Wealthy bore a good crop of fruit, but trees blighted some.

Peerless bore a fair crop, although they bore heavily the season of 1903. Trees came through the winter in very good condition and are perfectly free from blight.

Northwestern Greening wintered in good condition at my place, but I have found two places near by where the bearing trees died this spring. These trees were on high, exposed positions and bore a heavy crop the previous season.

Longfield bore a fair crop but blighted some.

Patten's Greening bore a light crop, no blight to speak of, and fruit is keeping well at this writing. Trees came through the winter in good condition.

Meader's Winter trees, set about thirty years ago, bore a heavy crop of perfect fruit. This variety seems perfectly hardy and bears annually. We think more attention should be given this crab apple, as it keeps into midwinter.

University. This tree seems to be very hardy and thrifty. We like the fruit better than Patten's Greening, although we do not think they will keep any longer, perhaps not quite so long.

Plums bore a heavy crop this year. The Surprise bore for the first time, on trees set in the spring of 1901. We like the fruit very much, and if the tree proves to be as hardy as it seems now it will be a valuable variety for this locality.

Wolf bore some but not so heavily as De Soto, Wyant or Forest Garden.

Grapes did very well for this locality. We do not consider this soil first class for grapes. We fruited the following varieties: Concord, Worden, Moore's Early, Agawam, Lady, Campbell's Early and McPike. For eating out of the hand we like McPike much better than Campbell's Early.

Strawberries were not a very good crop, the poorest crop that I have had in the nine years that I have been raising them. I think this was due to the excessive rains in the previous fall and the severe winter following. My newly set plants have done exceptionally well this year, and I have the most promising bed I have ever raised. The varieties that do best are as follows: Warfield, Sen. Dunlap, Lovett, Splendid, Bederwood, Enhance and Crescent, in the order they are written. I have also tried Nick Ohmer and Rough Rider, but will discard them. I expect to fruit several new varieties next year.

Residence of Fred Cowles, West Concord.

Raspberries bore a good crop, Older and Loudon taking the lead. From one row of Older ten rods long I picked 130 qts. Columbian, very late, bore a heavy crop but not of as good flavor as Shaffer's.

Flowering Shrubs. The Hydrangea paniculata grandiflora is a very beautiful, hardy shrub, blossoming in August and September. It needs no winter protection. Spiræ Van Houttii is very hardy, standing the winters without any protection. This shrub is beautiful as a single specimen on the lawn, or it makes a beautiful hedge. California privet is not hardy here; it killed to the ground the past winter, but came up from the roots and made a good growth this summer. The perennial phlox and pæonies are very hardy and should be planted more in the northwest.

Spirea Van Houttii on the place of Mr. Fred Cowles.

WINDOM TRIAL STATION.

DEWAIN COOK, SUPT., JEFFERS.

The season just passed (1904) has on the whole been a favorable one for this station. Owing no doubt to the preceding hard winter the bearing Wealthy apple trees are carrying a larger amount of dark wood than at any previous time, but I think they have received no permanent injury. The other standard apple trees were apparently uninjured.

All of our apple trees dropped their foliage earlier than usual, have ripened their wood well, and the prospect is bright for a large crop of apples next season.

We had some scab on our apples but less than we had in 1903. We had less blight than usual. What we had was mostly on the Wealthys. We had previously reduced the number of our bad blighters by chopping many of them out.

The Wealthy, Duchess, Peerless, Okabena, Patten's Greening, Antonovka and Northwestern Greening have the past season demonstrated their value and can be recommended for this section.

The following varieties have shown some merit but not enough to recommend them for general planting: Yellow Transparent, Juicy White, Breskovka, Russian Green, Blushed Calville, Cross and Hibernal.

The only crab apple that amounted to anything when tested by the bushel measure was the Florence.

The Wilfert apple top-worked upon the Virginia crab the spring of 1902 was entirely winter-killed.

The following varieties of apples from Edson Gaylord, top-worked upon the Wealthy, spring of 1903, appear hardy enough to be worthy of further trial: Gaylord's Red, Red Streaked, Twenty Ounce Pippin, Rolph, while the Old Smokehouse, Fall Queen, Fall Russett, Lord Dunsmore and Staar are probably too tender for our climate.

Winter scene at Windom Trial Station—cedar, spruce and Scotch pine.

I set three trees of the Yahnke apple in the spring of 1903, and also at the same time top-worked two Wealthy trees with it. They looked pretty weak last spring, and I thought the three trees were about dead, but they made a start quite late in the season, grew vigorously and have ripened up their wood in fine shape for the winter.

We planted one tree of the Scott's Winter the spring of 1893. It kills back some during the hard winters and is very slow about coming into bearing. This tree bore about one peck of very good fruit that promised to keep all winter. The tree now for the first time has an abundance of fruit buds.

Patten's Greening is proving more valuable each season, and I believe it should be planted instead of the Hibernal, as the tree seems to be just as hardy as that variety, while the fruit is of better quality and a much better keeper.

We got a very fine crop of plums, and nearly all kinds appeared to be trying to do their best. Very few plums were stung by the curculio, while the plum gouger failed to put in an appearance. It is probable that they have been exterminated by unfavorable climatic influence; neither were there any tent caterpillars noticed the past season.

Of the standard varieties of plums, the De Soto still keeps pretty well to the front, especially for home use, but the Hawkeye, Stoddard, as well as the Freestone and Clingstone Wolf, were more showy and with the exception of the Clingstone Wolf bore just as well as did the De Soto. The Wyant plum bore heavily, but it was a little off in color, and I don't think that it is quite as good an all round plum as is the De Soto. Forest Garden also gave us a good crop, but the fruit is a little too juicy when fully ripe and is not a good seller.

Hawkeye and Stoddard are so near alike that when we have one we do not need the other. The Freestone Wolf plum, while not equal to the De Soto for quality, is of such fine shape and size, and being a most reliable bearer, I am inclined to place it at the head of the list for market.

We fruited quite a number of seedling plums this season, several of which compared quite favorably with the best of our standard varieties.

Of the newer varieties of plums, the Eureka, the Emerald and the Free Silver are promising. My neighbor, Jos. Wood, had some Free Silver plums so large that only four of them could be gotten inside a Mason pint jar.

I omitted to mention that scions of the Wolf River apple received from Mr. J. S. Parks, spring of 1903, and top-worked upon the Virginia crab, appears hardy and promising.

The President: The Phoenix No. 15 fruited at my place this year, and I am very well pleased with it. It is something our nurserymen ought to look after.

READ ACROSS TWO PAGES.

What to Spray For	What to Spray With	1st Spraying
APPLE		
Scab	Bordeaux A	Just before bloom opens
Codling Moth	Arsenites in Bordeaux A	After bloom has fallen
Bud Moth	Arsenites	Just before the buds open
Canker Worm, Leaf Roller, Leaf Skeletonizer	Arsenites	Whenever young worms first appear
Scale	Kerosene or Whale Oil Soap	Early spring while trees are still dormant
Twig Blight		
PLUM		
Brown Rot	Bordeaux A	As buds are swelling
Shot Hole Fungus.	Bordeaux A	When leaves are half grown
Leaf Roller	Arsenites	When young worms appear
Curculio	Arsenites	As buds open
Leaf Lice	Tobacco Smoke or. Water	
CHERRY		
Leaf Spot	Bordeaux B	After bloom falls
Brown Rot	Bordeaux B	Same treatment as for Plums
Curculio	Arsenites	Same treatment as for Plums
Scale	Kerosene or Whale Oil Soap	
GOOSEBERRY		
Mildew	Bordeaux A	Before leaf buds open
Leaf Spot	Bordeaux A	As the leaves are opening
Worms	Arsenites	When young worms first appear
GRAPE		
Black Rot and Anthracnose	Bordeaux A	Just before buds open
Mildew	Bordeaux A	Just before blooming
RASPBERRY		
Leaf Spot	Bordeaux A	Before blooming
BLACKBERRY		
Anthracnose	Bordeaux A	Before leaves open
STRAWBERRY		
Blight or Rust	Bordeaux A	Before blooming
MELONS AND CUCUMBERS		
Anthracnose	Bordeaux A and B	When plants begin to vine
Mildew	Bordeaux A and B	10th to 25th of July
Leaf Blight	Bordeaux A and B	When plants begin to vine
TOMATOES		
Leaf Blight	Bordeaux A	3 to 4 weeks after setting or when blight first begins to appear
Black Rot	Bordeaux A	When rot first begins to appear

2d Spraying	3rd Spraying	Remarks.
Just after bloom has fallen	About 10 days later 4th Spraying 14 to 21 days later	
About ten days later	30 to 50 days later, or the last of June 4th Spraying 10 to 15 days later	The early sprayings for codling moth made with those for scab and later ones with those for bitter rot
		The spraying for bud moth can be made with the first for scab
5 to 7 days later if worms still remain		These sprayings can be made with Arsenites alone or with Arsenites in Bordeaux
After leaves fall		Use 20% Kerosene in early spring and 10% after leaves are out.
		Cut out and burn all blighted twigs. Paint wounds with an antiseptic
After bloom has fallen	20 to 30 days later 4th Spraying When fruit begins to mature	
8 to 24 days later		
[illegible] to 8 days later		
After bloom falls	5 to 10 days later	Jar the trees; gather and destroy all the fallen fruits
14 days later	18 to 21 days later	
Same treatment as for Plums		
Same treatment as for Plums		
		Scale receives the same treatment here as in previous cases.
After bloom falls	14 to 21 days later.	If later sprayings are necessary use potassium sulphide
14 to 21 days later	14 to 21 days later.	
3 to 5 days later	3 to 5 days later if needed	
Just after blooming	After fruit has set 4th Spraying 10 to 14 days later	Repeat as often as seems necessary at intervals of 10 to 14 days with ammoniacal carbonate of copper
Just after the fruit has set	14 to 21 days later 4th Spraying 14 to 21 days later	The spraying for mildew can be covered by those for rot and anthracnose
After blooming	14 to 21 days later. 4th Spraying 14 to 21 days later	After the fruit is about half grown use ammoniacal carbonate of copper
On young canes as soon as well started	7 to 14 days later	As soon as the fruit is harvested cut out and destroy all diseased canes
After fruit has set	Before fruit begins to mature 4th Spraying After harvest spray heavily	Use ammoniacal carbonate of copper for 3rd spraying Cut and rake off and burn old leaves and spray young plants
Repeat at intervals of 14 to 21 days.		
Repeat at intervals of 10 to 14 days		On Watermelons use Bordeaux B
Repeat at intervals of 18 to 24 days		
Repeat at intervals of 14 to 20 days.		
Repeat at intervals of 14 to 21 days		

SPRAYING PREPARATIONS, ETC.

FUNGICIDES.

BORDEAUX MIXTURE A.

Good stone lime (must not be air slaked)	4 pounds
Copper sulphate (blue stone)	4 pounds
Water	50 gallons

This is the formula to use for general purposes. In making slake the lime in a barrel and dilute to twenty-five gallons with water. Dissolve the blue stone in twenty-five gallons of water and pour the two solutions together at the same time into the spray barrel, keeping the contents of all three well stirred.

BORDEAUX MIXTURE B.

Lime	2 pounds
Blue stone	2 pounds
Water	50 gallons

This is one-half the strength of the regular Bordeaux and is to be used in instances where mixture proves too strong.

BORDEAUX MIXTURE C.

Lime	4 pounds
Blue stone	6 pounds
Water	50 gallons

This is the stronger Bordeaux mixture and may be used on dormant trees or in sprayings for bitter rot if desired.

BORDEAUX MIXTURE AND PARIS GREEN.

Use one pound of Paris green to 150 gallons of Bordeaux mixture. Slake three pounds of lime with just enough water to make a thin paste, mix the Paris green with this and add to the Bordeaux mixture.

COPPER SULPHATE SOLUTION.

Copper sulphate	4 pounds
Water	50 gallons

This solution is to be used only on dormant trees.

POTASSIUM SULPHIDE SOLUTION.

Potassium sulphide	1 pound
Water	50 gallons

AMMONIACAL CARBONATE OF COPPER.

Copper carbonate	6 ounces
Concentrated ammonia (26° Beaume)	3 pints
Water	50 gallons

To be used after the fruit has begun to mature in cases where Bordeaux mixture would be objectionable. Dissolve the copper carbonate in the ammonia and add to the water.

INSECTICIDES.

PARIS GREEN.

One pound of Paris green, 150 gallons of water and three pounds of lime. Slake the lime with enough water to make a thin paste. Mix the Paris green with this and add to the water, or to Bordeaux mixture.

ARSENATE OF SODA.

White or powdered arsenic	2 pounds
Carbonate of soda (washing soda)	8 pounds
Water	2 gallons

To be used at the rate of one quart to fifty gallons of water or Bordeaux mixture. Put the two ingredients in a gallon of water and boil fifteen to twenty minutes, and dilute with water to two gallons.

TOBACCO SMOKE AND TOBACCO WATER.

Put a tent over the tree to be smoked, and make a good smudge of tobacco stems for a few moments. There must be no blaze.

Tobacco water is made by soaking tobacco stems in water. If too weak it will not kill the lice; if too strong it will injure the foliage.

KEROSENE EMULSION.

Hard soap, or whale oil soap	½ pound
Water	1 gallon
Kerosene	2 gallons

Dissolve the soap in water by boiling and stirring. While the water is still boiling take from the fire and add the kerosene. Mix by pumping violently through a force pump for about ten minutes, or until the mixture becomes a smooth, creamy mass so that the kerosene will not separate from the water. For scale dilute the emulsion ten times, i. e., use nine gallons of water to one of the emulsion and apply before the buds open. For summer use, and for other insects, dilute the emulsion twenty times.

KEROSENE AND WATER.

Use ten per cent. solution in summer, and twenty per cent. in winter or early spring. In using this mixture it is necessary to have pumps that are made especially for the purpose.

REPORT OF COMMITTEE ON $1,000 SEEDLING APPLE PREMIUM.

PROF. S. B. GREEN, CHAIRMAN, ST. ANTHONY PARK.

At its annual meeting in 1899 the Minnesota State Horticultural Society made an appropriation of $1,000 as a premium for a late-keeping, hardy winter apple of good quality, adapted to Minnesota. The exact qualities of the apple are that it shall be "as hardy as the Duchess, of as good quality as the Wealthy and keep as long as the Malinda." It was specified that scions of varieties entered in competition should be sent to the Central Experiment Station for trial, and they should be accompanied with a statement that included the full history of the variety. No restriction was put upon its origin; it might come to us from any place and might be some old variety, the value and hardiness of which had not become known.

In all, forty-two (42) entries have been made for this premium, and a tabulated statement follows, which gives in a compact way the particular points of interest in connection with each entry.

It will be noted that eleven states and Canada are represented in these entries. In a few cases the owners of the varieties have either neglected or have refused to send scions. Such entries of course would be ruled out completely. In several cases, also, it is plain that the season of the fruit is not such as would entitle it to entry in this class.

One of the direct results from the offer of this premium has been to bring the Minnesota State Horticultural Society into prominence throughout the United States as being one of the most progressive and energetic horticultural societies in the world. Another result has been to encourage the growing of seedlings in this and adjoining states, in the hopes that a variety might be produced that would come up to the specifications for this premium.

It can be truly stated, that your committee knows of nothing that could have done more to promote the general growing of seedlings in this section than a movement of this sort on the part of the horticultural society.

The chairman of your committee is also horticulturist at the Experiment Station, and he thinks that more will be done in the way of production of valuable seedlings by encouraging the raising of seedlings by planters throughout the state than to confine such work largely to the experiment station, although the Central Experiment Station and the Owatonna Tree Station are doing considerable work along this line.

The scions received at the Central Experiment Station have been top-worked on Virginia crab, and generally have made a good growth.

A tabulated list of the entries here follows:

NAME	State	Year recorded	Season claimed by originator	Apparent season	Cions sent	Grafts present condition	REMARKS
Ahlin, August	Cal.	1900	....	Fall.	Yes	Good	
Allert, J.	Minn.	1899	March	....	Yes	Good	
Billings, Mrs. A	"	1900	June	....	Refuse	....	
Carpenter, De Witt	N. Y.	1900	....	....	Yes	Dead	Sent in poor conditi'n
Chapman, Geo., No 1	Minn.	1901	....	....	Yes	....	
" " " 2	"	1901	....	....	Yes	....	
" " " 3	"	1901	....	....	Yes	....	
Church, T. A.	N. C.	1901	June	....	Yes	1 Dead, 1 Good	
Clausen H. H	Minn.	1900	March	....	No	....	
Derby, R	Ohio	1900	April	....	....	....	
Donell, E. T	Illinois	1900	....	....	No	....	
Doughty, Miss C. G.	Penn.	1900	April	....	No	....	
Haycroft, Miss D. S.	Minn.	1900	Feb.	....	Yes	Good	
Hickernell, J. E	Penn.	1900	June	....	Refuse	....	
Hart, A. E	Illinois	1900	March	Dec.	Yes	....	
Hill, A. W	Minn.	1903	....	....	No	....	
Jacoby, Philip	"	1904	....	....	No	....	
Juleson, O	"	1900	....	....	No	....	
Kadletz, Mrs. J. D	"	1901	March	....	Refuse	....	
Larson, H	Wis.	1903	....	Fall	No	....	
Ludquist, W.	Minn.	1902	April	....	No	....	
Martin, Mrs. P.	"	1900	....	Fall	No	....	Deficient, *Out*.
Michaelson, Benj	Ohio	1900	May	....	Yes	Good	
Mohr, H	Penn.	1900	May	....	Yes	Tips dead	
Norwood, W. N	Ark.	1900	Dec.	....	No	....	
Olson, Capt. S.	Iowa	1901	Like Baldwin	....	Yes	Good	
Oebser, L	Wis.	1904	......	....	Yes	Good	Good keeper.
Patterson, S. W	Miss.	1902	Jan.	....	Refuse	....	
Phillips, Geo.	Iowa	1900	April	....	Yes	Very poor	
Propp, Fred.	Wis.	1900	May	Fall	Yes	Very poor	
Ramer, Joseph.	Minn.	1900	July	....	Yes	Dead	Sent in poor conditi'n
Rinkel, Mrs. M	"	1900	March	....	Yes	Very poor	
Siebenaler, M	"	1900	July	Like Ben Davis	Yes	Good	
Sutherland, G., No. 1	Can.	1900	Jan.	....	Yes	Good	Size, color, keeping satisfactory.
" " " 2	"	1900	April	....	Yes	Fair	
Taylor, W. L.	Minn.	1900	....	Fall	No	....	Deficient, *Out*.
Thompson, A	Can.	1900	Jan.	Fall	No	....	
Woodward, E.	Ohio	1900	April	....	Yes	Badly killed back	
Yahnke, F., No. 1	Minn.	1901	....	....	Yes	Good	No history.
" " 2	"	1901	....	....	Yes	1 Dead, 1 Good	No history.
" " 3	"	1902	March	....	Yes	Blighted	
Klager, Ernest	Wis.	1904	May	....	No	....	

NUMBER OF ENTRIES FROM STATES.

Arkansas, 1; Canada, 3; Minnesota, 20; Pennsylvania, 3; Ohio, 3; California, 1; Iowa, 2; Wisconsin, 4; Mississippi, 1; North Carolina, Illinois, 2; New York, 1.

FLOWERING SHRUBS.

MRS. A. W. MASSEE, ALBERT LEA.

(So. Minn. Hort. Society.)

Nothing adds more to the appearance of the home than flowering shrubs judiciously planted. In planting shrubs, you must study your surroundings. If your place is small you can have but few, and I would have them the choicest that can be grown here and preferably of dwarf growth. But truly, I suppose, I should have those I like best, and you will too. If your grounds are large you may have more, perhaps a specimen of every kind that can be grown in this climate, or, rather, I would have two or three specimens of the kinds I particularly like and leave out some I do not care for. Do not make the too common mistake of crowding for the sake of having everything that can be grown. A few well grown specimens scattered on the lawn, preferably near the borders, in the angles of the buildings, at the back of the premises, will give a more pleasing effect than crowding many kinds into a small space. They will grow better, in better shape and give you more blooms. Most shrubs should have a good dressing of manure in the fall; they repay you for it in fine blooms, more of them, better foliage and added growth.

There are many very beautiful shrubs which will not endure our climate under any conditions; others that can be grown if protected more or less in some way; but many of them are so rigid that it is difficult to protect them when they become large, so we let them go and lose them. I have lost many that way. While we may regret that we cannot have those that are so desirable yet so much trouble to protect and so uncertain, we have quite a list that is ironclad even in Minnesota, from which we can select those that will bloom most of the time from spring till late autumn and ought to satisfy any reasonable person.

We all know the old fashioned lilac, both purple and white, and now we have some new varieties, in new shades, and some that are double flowered, that are claimed to be as hardy as the old varieties. I cannot vouch for this, as I have not tried them, but I intend to do so. The Snowball Syringa, or Mock Orange; upright Honeysuckle, two varieties; Spirea, several varieties, are ironclad. The Flowering Almond is lovely in May, but it will winter-kill some years unless planted in a sheltered position. I have two quite large bushes that have never failed to give me blooms though planted in quite an exposed situation. I have to cut them back some nearly every year; still, I would not give them up. If you will take up the new shoots that come from the roots and reset, they will soon come on and bloom nicely and seem more lovely and vigorous than old bushes. I think it is well to renew them in that way quite often.

Every one, no matter how small the place, should have one specimen at least of Spirea Van Houtii. When in bloom I think it is the prettiest shrub I know, and its appearance is pleasing and graceful at all times. If I could have but one shrub I think it would be that. It is the only variety of Spirea I shall have on my place after next spring, with perhaps one exception, which if it proves hardy this winter I will keep. I don't know the name of the variety as it came to me by chance. All other varieties of Spirea I shall dig up and fill the space with something I like better.

I have tried several varieties of the Deutzias, but they have not proved hardy without protection, and that being so difficult to give after they attain blooming size I have discarded them. Weigelias are handsome flowering shrubs in shades of pink and red, also white. They bloom in the greatest profusion in June, and my pink one gives quite a little bloom throughout the season. My experience is that they must be planted in a sheltered place or given some protection, although it is claimed that they are perfectly hardy. They grow very rapidly at our place and late in the season, and the wood does not seem to ripen—the same was true of the Deutzias. In some situations they might make a slower growth and be hardier. Anyway they are well worth a little extra care and trouble.

The Sweet Pea shrub is a shrub for every one, and although not generally grown I am sure it would be if its merits were known. In May and June it is completely smothered in bloom. It blooms in large clusters or pannicles, each individual flower like a large Sweet Pea, of a lilac pink or crimson color. The foliage is very handsome, something like a Locust, to which family I think it must belong. After the first blooming period it blooms again, but not as profusely. It grows to be quite a large shrub, but blooms when quite small. It has one fault: it sends up shoots from the roots, sometimes many feet from the parent plant, so if you do not cut them down they will soon occupy the whole space. A clip of the hoe or the lawn mower will soon put an end to their ambitious scheme for expansion. I think they will grow in any situation without protection excepting against rabbits.

Secretary's Corner.

A GOOD SHOWING FOR THE LOUDON.—"I set out 50 Louden. They produced 100 quarts the second year. I can speak only good of them."

G. A. LUNDINE, MILACA.

AN AUXILIARY SOCIETY AT WILLMAR.—An auxiliary society with twenty-one members has just been organized at Willmar, Minn., Mr. P. H. Frye being the president and C. C. Selvig the secretary. Two meetings have been held and a constitution adopted.

MIS-REPORTED ON THE LOUDON.—In the March "Horticulturist," page 94, the reporter makes Mr. J. W. Merritt, of Winona, say, "I would not take the Loudon as a gift," which Mr. Merritt says is a mistake. He says further, "The Loudon raspberry does splendidly on our heavy clay soil."

PRESENT MEMBERSHIP IN THE SOCIETY.—At the date of writing, March 27th, the annual membership roll stands at 1438; adding thereto the life membership of 144 makes the total roll at this time 1582, which is considerably more than a year ago at the same date. With the co-operation of the membership it ought not to be difficult to reach a total of 2,000 this year.

THE CHENEY PLUM IN MANITOBA.—"I have succeeded in growing apples, crabs and plums here, but one thing surprises me, I find the Cheney plum away ahead the best of all the varieties I have grown, and yet in all your reports I scarcely ever see it mentioned; but I notice the DeSoto is highly praised by many of your members, but here they taste so acid that no one will use them; the Cheney on the contrary, has no acidity, and is excellent for use."

H. L. PATMORE, Brandon, Man.

GOOD WORDS FOR THE HORTICULTURIST.—A few of the pleasant words coming to us:

"I enjoy the Horticulturist more than I can tell you."

"I find the Horticulturist a very valuable publication."

"March issue of the Horticulturist at hand. I am *so much* pleased with it."

"I think ever so much of the magazine, and it surely is a great help."

"This March number is in my estimation the best ever got out. I had time this morning to read it, and I did not stop till I had read every word in it."

A NEW HORTICULTURIST AT IOWA EXPERIMENT STATION.—It is announced that Prof. S. A. Beach will occupy the chair of horticulture in the Iowa College of Agriculture and State Experiment Station at the opening of the next school year. For the past thirteen years he has filled a similiar position with the New York State Experiment Station with distinguished success. Prof. Beach is an Iowa boy and a graduate of Ames, under the tutelage of Prof. Budd, twenty years ago. After graduation he was connected with the old Silas Wilson nursery, at Atlantic, Ia., and later held the position of professor of horticulture at the Texas station.

ENCOURAGING REPORTS FROM THE NORTHWEST TERRITORY.—A late communication from H. Anticknap, Regina, N. W. T., speaks encouragingly of the success of small fruits in that region. He says "I had very good success with my garden of small fruits this year. Strawberries were excellent, Senator Dunlap leading, althöugh the Clyde is a good one. The greatest drawback to young trees is the jack rabbit. They are by the hundreds. I tried washing last winter but when the snow gets to be deep, they strip every limb off the trees. The Balm of Gilead is taking the lead as a shelter belt tree, as they will stand all kinds of hard usage. The cottonwood I find dries out when the grass gets among them.

SECRETARY OF WISCONSIN SOCIETY.—Frederick Cranefield, secretary of the Wisconsin State Horticultural Society, visited with us a number of hours on March 23rd, and we swapped experiences to our mutual benefit and pleasure. Mr. Cranefield is a young man, whose training as assistant horticulturist connected with the Wisconsin Experiment Station peculiarly fits him to do good work in the position he now occupies. He is giving special attention to the care of a number of experiment orchards which the society is conducting in different parts of the state, with the purpose of learning what varieties of fruit are adapted to these various localities. He brings to the work of the society, youth, ambition and training, which should make his services of special worth to that association.

PLANT PREMIUMS.—The plant premiums offered to our membership will be sent out sometime in April, probably in the neighborhood of the 15th or 20th. As most of the plants are mailing size, they are necessarily small and the roots are, in the main, made up of small fibres. This will necessitate special care in handling and planting to insure success. When received, if at all dry, it will be well to soak them in water or thin mud for a day or two, and in planting, use fine loam about the roots, well pressed down, with a little water if necessary, and shade for a few days. Root grafts should be planted so that only one bud shows above ground, and earth firmed very solidly about them, not only at the top of the ground, but their whole length. A good many root-grafts are lost by being planted to shallow.

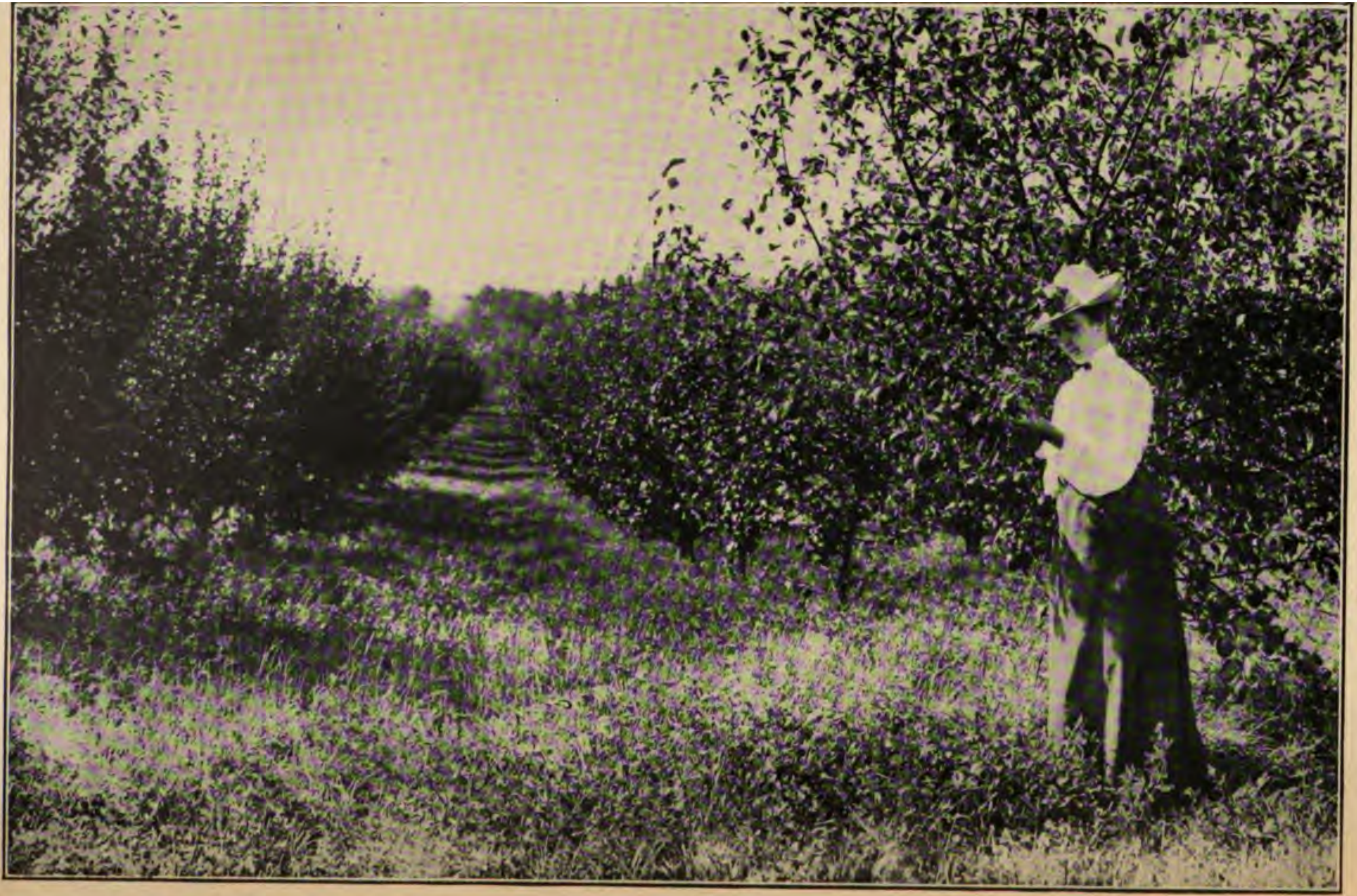
BUDDED PYRUS BACCATA TREES FOR EXPERIMENT.—It is the purpose this spring to send out to the various trial stations a dozen or more trees of standard varieties, budded at the crown on Pyrus baccata seedlings, for the purpose of testing their value in this climate as orchard trees. The plan is to have them all planted and cared for under similiar conditions, in the hopes of getting definite results from the experiment that will be of general value. These trees are to be furnished by the central station, and as they have quite a quantity on hand we understand any person can secure a few for experimental purposes on the payment of twenty cents each. Address Prof. S. B. Green, St. Anthony Park, for them. It is hoped that a large number will take part in this experimental planting, which gives much promise of valuable practical results.

DEATHS IN OUR MEMBERSHIP.—Information has recently come to me of the death of Mrs. A. A. Kennedy who, I understand, had removed within a year or two to Colorado and died there. Mrs. Kennedy was for many years one of the vice-presidents of the society and, until within two or three years, for a long period, a regular attendant at our annual meetings. She was not only a lover of horticulture but practiced it extensively at her home place in Hutchinson. No face was more regularly to be seen at our meetings for the last twenty years than hers, and none will be more missed.

G. M. Teachout, of Minneapolis, died at St. Augustine, Florida, Feb. 9th, 1905, at the age of seventy-six. Mr. Teachout was not engaged in any horticultural pursuit, but felt a deep interest in the subject, and for a number of years, in which he had been a member, he was a regular attendant at our meetings and had made many acquaintances there who will regret to hear of his death.

HORTICULTURE AT THE COMING STATE FAIR.—Supt. J. M. Underwood, of the agricultural and horticultural departments at the coming state fair, is progressing well with his plans for the joint development of these two departments. The method has been decided upon for the rearrangement of the hall and necessary preliminary steps taken. Mr. Wyman Elliot will occupy the position of assistant superintendent in the agricultural department, and Mr. Thomas Redpath will occupy the same place in relation to the horticultural department. A few changes have been made in the premium list, in the main the changes which were suggested last year but which the board failed to adopt. The premium list is now in the press and will soon be ready for distribution. It is hoped to make Agricultural Hall this year more attractive than it has ever been before, and the fruit growers of the state are urged to do their share in the bringing about of this result. The fair being held a week later than last year, with an average season and the satisfactory fruit prospects, there ought to be plenty of fine ripe fruit for the occasion.

OUR BILLS IN THE STATE LEGISLATURE.—Our membership will be interested to know that the two bills introduced into the state legislature, providing for an increase of the printing of the society and also of the annual appropriation, passed the senate without opposition and are now in the hands of the sub-appropriation committee of the house, where they will probably remain until reported out as a part of the omnibus appropriation bill near the close of the session There is no apparent opposition, but a general inclination on the part of the members of the legislature to grant the requests of the society, it being apparently only a question of finances at their disposal. In asking for the amounts we did, the figure was put as low as possible consistent with the successful carrying on of the increasing work of the society, and these amounts ought not to be cut down in the appropriation. That is probably the only danger that threatens this legislation. It is not yet too late to address members of the legislature on this subject, as they do not adjourn until the middle of April, and every word received from our membership, urging the needs of the society, will have a bearing on the final result. Members should still take opportunity to write or speak to our legislators about these matters, which are of such vital importance to the association. The amounts asked for, as heretofore noted, are $3,000 for the printing fund and the same amount for annual appropriation for the society.



LYMAN'S WEALTHY SEEDLING ORCHARD, EXCELSIOR, MINN. PLANTED BY THE LATE HENRY M. LYMAN, IN 1876.
From photograph taken Sept., 1903.

THE MINNESOTA
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ANNUAL REPORT OF SEEDLING COMMITTEE, 1904.

WYMAN ELLIOT, CHAIRMAN.

Regarding the choosing of apple seed to plant, I desire to call your attention to a few recorded failures made by our early pioneers in growing seedlings from southern grown seed.

Peter M. Gideon, in 1854, planted one bushel of apple seed brought from Illinois, and nineteen years later had, as the result, one tree bearing apples of a very inferior quality; later Mr. Gideon planted seed procured from Albert Emerson, of Bangor, Maine, from which he produced the Wealthy and many other valuable seedlings.

Again G. H. Pond planted, in 1843, apple seed from Connecticut. One hundred grew from this planting, and he said the sight paid him for his care, but being planted along the south side of a fence the snow drifts of winter smothered all but five, and of this number there is now but one, which was taken from a sprouted root and produces an inferior apple.

Contrast these records with John Shaw's experiment in bringing apple seed from Exeter, Maine, and planting at the mouth of Rolling Stone creek, north of Winona, in 1852. From this planting trees were set in orchard, by Mrs. Campbell, and in 1873 produced six hundred bushels of fruit.

The great impetus given to the growing of seedlings in our state comes largely from a necessity or lack of varieties adapted to our climatic conditions. To look back over the horticultural records of the state and compare the discouragements and failures experienced by the pioneer fruit growers with the progressive development of this increasing industry at the present time, is a surprising revelation to many who have not kept in close touch with our horticultural progress. That which was considered a foolhardy undertaking is now an assured success.

The display of apple seedlings at the state fair this year was one of the most interesting exhibits ever made by our members and was a great attraction to the people visiting horticultural hall; it was larger than the display made at any one time at the World's Fair in St. Louis.

The fine exhibition of seedling apples and plums each year is furnishing a splendid object lesson of what is being accomplished by the fruit growers of our state in producing varieties suitable to our environment. The planting of fruit seed is becoming almost epidemic and will help develop the fruit industry as no other effort can.

Our secretary recently said "Every one possessing sufficient ground should save all seed possible, from good apples, and see it planted and well cared for."

The exhibition of choice plum seedlings, at the state fair, was very good, showing conclusively that the interest in this department is, each year, increasing. Some were exceedingly fine for size and quality. Dewain Cook's new seedling from the cling Wolf plum is a remarkably promising variety; it is one and one-half inches in diameter and took first premium. Mr. R. H. L. Jewett showed samples of several new seedlings, possessing many points of real merit. All over our state many new seedlings are produced each year that add value to our long list of choice cultivated varieties.

The Aitkin plum, grown by H. G. McBride, Annandale, Minn., was the largest on exhibition at the state fair, its diameter being one and eleven-sixteenths inches.

New Seedling Apples—Nils Anderson, Lake City, has a very prolific seedling, of good size; although top-worked with Northwestern Greening it bore three bushels of fruit this year.

I called on W. C. Northrup, Red Wing, who has several plantings of seedling apples not yet in bearing, also a number of new seedling plums. He has spent ten years experimenting in top-grafting the Wealthy, Peter, Patten's Greening and Malinda, using Virginia and Hibernal for stocks, and considers the latter the best, as they do not blight as badly and are more productive. In future he will use Hibernal entirely.

A. L. Goldenstein, Lake Crystal, Minn., has a seedling apple that was put in cold storage the fall of 1903, taken out the following July and exhibited at St. Louis. The assistant superintendent wrote it was the finest seedling among the Minnesota apples, and it was awarded a silver medal.

The standard of excellence in seedlings apples has been placed so high there are but few kinds that possess enough points of value to make them worthy of propagation. We may not be able to produce at once those kinds that will be adapted to all our climatic conditions, soils and environments, but we hope by united effort to succeed in raising trees that will possess enough good qualities to make them valuable to our orchardists in every portion of our state. In the selection of kinds we should be careful not to at once discard those that do not fulfil all the requirements of our expectations. There may be trees that at first bear fruit that is inferior in size, color and quality that may on further trial prove to be valuable.

Seedling Grapes—Prof. S. B. Green has raised a seedling grape from seed of Beta, or Ebony, that is fully as productive as either and perhaps a little better quality and as hardy as Beta. It fruited for the first time this year. He is propagating it and expects to have stock to send out before long.

The President: If Mr. Elliot will permit me, I will say that we have now reached the climax, or what I would call the climax, of the meeting in the consideration of these fine seedling apples. All the work of the society centers toward the production of something that is adapted to our state, and here I think we have the most beautiful collection of seedlings I have ever seen, right before us. This committee, which is a highly capable one, and which has acted in a similar capacity at our fairs and horticultural meetings, gives us the benefit of its knowledge in judging these seedlings. Many of us who are producing seedling fruits wish to know what constitute their valuable points, and this is especially true in the case of the apple. Mr. Elliot is chairman of the committee, and I shall call upon him to say something about these apples.

Mr. Wyman Elliot: I will say this: In judging the apples at our state fair we ran up against this proposition: we have summer varieties, we have fall varieties, early fall varieties, late fall and late winter varieties, making five classes. On account of that, with our present premium list we have been compelled in judging to throw out two of the classes usually. We think there should be a revision. Now in speaking of this collection here, Prof. Green and myself judged these apples this morning and scored them off on the variation plan, and we found we ran up against this same proposition here. People are inclined to enter varieties in the wrong class. They will enter for winter what should really be a fall variety, but they do not enter for fall what should really be for winter. They are all anxious to get a winter variety. That is what they are all seeking for. It seems to me when we come to judge the apples in the fall list at the state fair, those samples should be set aside and judged at the winter meeting. The samples that are judged at this meeting should be set aside and judged two or three months later by some competent committee. In that way we will get at the true merits of the fruit. In judging some of the varieties today we found some in the winter class that are just in season now, while others were tough and hard and they could not be judged with any degree of certainty, and for that reason we recommend that seedling apples that are presented for competition shall become the property of the society to dispose of as it sees fit.

This apple in my right hand is a seedling of the Wealthy, and this one in my left is a seedling of the Malinda. What this one on my left is crossed with we do not know, but what this on my right is crossed with we do know, and for the reason that there is evidence that there was no other pyrus malus variety than the Wealthy growing on the place at the time, as I understand it. If I am not correct, I hope Mr. Lyman will set me right.

Mr. A. B. Lyman: As I understand it there were very few apple trees. There were Siberian crab trees, but they were quite remote.

Mr. Elliot: Your father told me that was about the only thing that fruited on the place that year.

We have here a collection of seedlings of Malinda crossed with the Perry Russet, the Haas, the Duchess and Tetofsky, so that this is quite a valuable collection of seedlings from a scientific standpoint. A number of these seedlings show a great prepotency to the Malinda on the mother's side, and the Wealthy is noted for its prepotency in all its seedlings. We have a perfect Wealthy in a large number of seedlings in our state, and it is noted not only in the form of the apple, but it occurs in the size, the quality of the flesh, the color, the markings of the leaf, the growth, etc. Even in the seeds and the seed carpels we note the resemblance.

Here is another (exhibiting apple), Lord's L. The first time I saw it on exhibition it was this same shape but smaller, and was grown on sandy soil. This one here (indicating) was grown by Mr. Merritt on clay soil, and he sent down to the World's Fair some of the most magnificent fruit of the Wealthy that have ever been seen, showing what soil will do.

This yellow apple (indicating) is a sweet apple. This is from Alling & Co., of Winona county, and they told me this is a sprout from a grafted tree that killed down, but it is a magnificent sweet apple. It is of fine grain and very firm, and I do not see why it is not going to make a splendid baking apple. It has size and commercial value.

Here is a class of apples originated at Farmington by D. F. Akin, and I have been watching them with a great deal of interest. The history of these apples, as given by Mr. Akin, is that they were planted in 1871. He had two barrels of apples the previous winter, and from those apples he saved seed and planted it, and he has got all kinds of apples. They were like some of the potatoes sent to market,—very much mixed; but he has Russet, Fameuse, Ben Davis, Greening and Baldwin, and I do not know what all. These apples, when they first began to be shown at fairs, were not generally as large as they are now, and some were a great deal smaller, and for that reason if an apple is small, if it has hardiness, productiveness and quality, do not discard it until you have given it a thorough trial. The Patten's Greening was no larger than that (exhibiting a small-sized apple) when first introduced, but today we find them all over, and they are of good size. It simply shows what possibilities lie in the proper development.

Here is an apple—Mr. Philips here calls it a Shook—that was originally a crab. If you can grow no better apple than that, it is worth trying for. I have seen the time when we had the yellow crab, and we thought we had a bonanza.

MR. E. R. PERKINS IN HIS SEEDLING ORCHARD.
This orchard came through the severe weather of the winter of 1903-4 with no material injury—a very satisfactory record.

Here is the Avista. This in a splendid apple, a winter apple, The only faults it has are a slight inclination to blight, and the tree is a little shy in bearing.

Here is one Mr. Philips sent here which he calls the Eureka, and it shows what he needs to do. He wants to purchase a sprayer, and then he wants to see that it is used.

The great trouble with most of our people is that they buy a sprayer and then put it in the toolhouse or workshop, and there it remains. They say they are going to do this spraying some time, but they do not improve the opportune time; they let the proper time go by, and the consequence is they have scab and rot and codling moth, and the whole category of diseases that infest the apple. We have got to begin to do something for this condition of things, and the time to begin is just the first time that the proper time present itself.

Now this is what he calls the Eureka. It is a very good apple; it is a sweet apple.

These are all Wealthy seedlings I hold in my hand. They come from the Lyman orchard. Some are large, some are small, and some are highly colored.

Mr. W. L. Taylor: Are any of those seedlings more hardy than the Hibernal seedlings?

Mr. Elliot: There are some of these seedlings which the owners claim to be just as hardy as the Hibernal or Duchess. It will take years to test that. In the case of Mr. Perkins' orchard— I was there last May, when the trees were in bloom, to see what the effect of the winter had been on them, and I was agreeably surprised to learn and to see that they had come through the winter in magnificent shape. There are only two or three trees in the whole orchard of 160 or 170 varieties that were injured to any extent.

Mr. A. J. Philips (Wis.): Here is the Dominion Winter, that is as hardy as any apple tree that grows.

Mr. Elliot: It is of very good quality, and it has some commercial value. When you go down to the corner grocery and see the kind of fruit that comes in and that they sell to customers, I tell you we have no reason to feel ashamed of what we have on our tables.

Capt. Reed: What seedling here indicates the most value, and by whom produced?

Mr. Elliot: That is a hard question to answer, but I will tell you. Here is a seedling (exhibiting apple) which we had at the World's Fair. Mr. Erwin was looking over our large collection we had there at that time, and he took up one of these and cut it and made this request: "I want you to send me to Washington some samples of that seedling; I think that is something of value." Coming from authority as good as that, I think, perhaps, there is about as much value in that apple, according to our present information, as anything we have here.

Capt. Reed: By whom was it produced?

Mr. Elliot: By Mr. H. M. Lyman, of Excelsior.

Mr. A. J. Philips (Wis.): Is it productive?

Mr. A. B. Lyman: It is very productive; it is characteristic of that variety. We had this year about nine bushels. They were picked about the 7th of October, and they were put away ten days later. I looked over them before I came to this meeting, and there was not an apple in the lot that was spotted. It takes well, it is productive and has the outward appearance of the Wealthy, although not quite as red as the Wealthy. The tree has not shown any weakness, but I would not say it is as hardy as the Hibernal.

Mr. Ferris (Ia.): Is it a seedling of the Wealthy?

Mr. Lyman: Yes, sir.

Mr. Merritt: How many trees have you?

Mr. Lyman: One tree, the parent tree.

Prof. Robertson: Mr. Elliot spoke of apples increasing in size. Do they improve in quality?

Mr. Elliot: In some instances they do, and in some instances they go the other way. The quality varies with the soil. I think that is a fact.

The President: As Prof. Green is on this committee and has taken an active part in arriving at these conclusions, I am sure we all want to hear a word from him.

Prof. S. B. Green: I feel it is hard on me to follow Mr. Elliot. He has made such an exhaustive and exceedingly interesting lot of notes and comments on these seedling apples that there is absolutely nothing more for me to say. I had the pleasure of going over these seedlings this morning with Mr. Elliot, and it is really a sincere pleasure to go over such a collection like that with a man like Mr. Elliot, who is so well informed in regard to these matters. I feel in many cases I can learn from him, I can assure you. He talks about Prof. Hansen and myself being scientific and all that kind of taffy, but I think Prof. Hansen and myself would be willing to accord Mr. Elliot as good a scientific place in this seedling production as ourselves.

As I look at these apples, one by one, there comes to me something of the work of the originator. I take up this one, and think of Mr. Akin. He is confined to his house, so he is not able to come to our meeting. I can see his orchard where he sowed the seed in 1871,—thirty-three years ago. He sowed the seed in his yard, and the orchard fronts on the road. They have been exhibited, year after year, and during times of discouragement, when we were cast down, when we worked at low pressure, it has been a great encouragement to the horticulturist to see what good work Mr. Akin has done along that line.

Here is a plate of apples of a good color, a surprising lot of apples that are well up to the commercial standard. They are the varieties shown here by Mr. Lyman, and I think of that orchard out there at Excelsior, of the good work of Mr. Lyman, and of the encouragement he gave for the growing of apples in Minnesota. Starting out as a pioneer, leading all the way, he raised these apples from the seed of the Wealthy, and we are profiting by the work of these people. It has been largely a labor of love with them, but it has come by a lot of hard work; they gave their time and money to it.

Here is Mr. Lord's seedling. When I took at this I think of Mr. Lord; I think of him sitting down here before us. He has helped us build up a system of horticulture; he has given us the Rollingstone plum, and he has done more for us in the growing of plums—I almost said than the rest of us put together, but I feel just that way about it. But that work that is being done is a work that is helping to build up things, to make it easier for us human beings to live, and to support a higher and better state of civilization. That is what those things mean.

So I might go through the whole list to show the effect of their work, the stimulus it has been to the people in Wisconsin, to us in Minnesota, and to the entire Northwest. I might say the same thing of Peter Gideon in relation to the Peter and the Wealthy—although they are hardly distinct enough to be called separate varieties—and he has left a legacy that has been of so much profit to us, and to the states lying east and west, and, in fact, to all the states along the northern portion of the United States.

I want especially to mention, too, this work of Mr. Perkins. I am quite sure I am correct when I say that Mr. Perkins never did anything in his life out of which he got so much comfort and honor and fun as he did out of this batch of seedlings. He has had just the nicest time possible since those apple trees came into bearing, and people have patted him on the back and said——

Mr. A. J. Philips: Didn't his wife plant the seeds?

Prof. Green: Yes, but he gets the glory out of it. They stand there as a monument; they stand there as a memorial. They are worthy to stand by because we have proven them to be what they were represented to be, and in that way he has helped us to build up this system of horticulture we have today.

I could go on and name a lot of other men who have done good work along this line. I know the work of Mr. Richardson, of Mr. Patten, of Mr. Kenney along those lines, and the work of a whole lot of other people. I have been with you now for seventeen years, and I want you to understand that the longer I am with you the more I respect you, and the more I want to help you in your work.

I just came up here to sort of put the tail on the end of the kite and to supply a little wind to keep it up, but I honestly and truly believe every word I have said. (Applause.)

The President: Now this committee report and the discussion upon it would not be complete if we did not hear a word from Mr. Lord, the third member of the committee.

Mr. O. M. Lord: I just wish to emphasize one point that Mr. Elliot made in regard to the first production of a seedling. He said we should continue it even if it did not promise well. Mr. Mitchell, of Iowa, an old nurseryman, told me that the first production of an apple was no indication of its after production. That frequently an apple would be very sour and afterward would become sweet, or that at first it might be sweet and then it would become sour. He also said the fruit would grow larger as it grew older. So it establishes the fact that we cannot make a prediction of what a seedling will do.

NOVEL WAY TO GROW NASTURTIUMS.—Last summer we experimented with nasturtiums. We placed three layers of sod upside down on top of each other on each side of the driveway, which is more than 100 feet from the house to the road. With a sharp pointed stick we made a hole about 2 inches deep and dropped in the seed. The driveway was beautiful all summer and one solid mass of bloom until the heavy frosts came. The plants were not watered at all and although the season was very dry, they did not show signs of wilting and yielded quarts of seed, beside the immense amount of flowers plucked and given away.

REPORT OF COMMITTEE ON OBITUARY, 1904.

O. F. BRAND, CHAIRMAN.

Resolved, That now we pause for a moment from the rushing activities of commercialism to pay a deserved tribute of respect to three of our life members, who, since our last meeting, have laid down the burden of this existence and passed onward to the higher life. We will not say that any of them are dead, for there is no death.

L. M. Ford passed over at his home in San Diego, Cal., in the early part of 1904. Bro. Ford came to St. Paul in an early day and started a nursery and greenhouse very soon after. It may be said that he was the pioneer in horticulture in Ramsey county. At a very early day he became agricultural editor of the St. Paul Press, and later of the Pioneer-Press. He was truly a leading horticulturist of our state from thirty to forty-five years ago. In 1874 he was secretary of this society and contributed his full share toward its usefulness. Visiting him at his home about five years ago we found him—old and alone—anxiously awaiting the summons to join his life partner on the other shore. To help pass away the lonely hours he was dealing in cactus, of which he had every variety he could hear of on the face of the earth. In his case we cannot say that we believe "kindly nature did him wrong to softly disengage the vital cord." He has joined the rapidly growing band of Minnesota horticulturists on the other side of the River of Life.

Hon. Wm. S. Dedon passed to the higher life at his home at Taylor's Falls, Nov. 28th, 1904, aged sixty-one years. He became a life member of this society in 1896. A great lover of the good and beautiful in nature his home and its surroundings always gave evidence that its owner was one of the noble ones of earth. Brother Dedon was born in Sweden, and came to this country with his parents when very young. In 1862, at the age of eighteen, he enlisted in the 7th Minn. Vol. Inf. and never missed a march, skirmish or battle till the war closed. He was for many years in the employ of the St. Paul and Duluth Railroad as cruiser and land examiner. From 1890 to 1894 he served his county as state senator. Then followed his work of re-assessment of Itasca county and conducting the Pine Land Investigation. He was then appointed state cruiser and pine land examiner. His work while so acting was considered the best ever done for the state. He was married July 4, 1878, to Miss Louise Anderson, who, with two daughters, three sons and one adopted son, survive him. While we regret to part with Brother Dedon, our state needing so badly the work and example of such men as he, who always faithfully perform that which is given to them to perform, we acquiesce, knowing that our loss is his gain.

Jacob Warren Manning passed over Sept. 16, 1904, at Reading, Mass., in his seventy-ninth year. To the memory of this veteran horticulturist America owes much. As an introducer of rare and valuable new fruits, flowers and trees, Mr. Manning was in the front rank. It was he who in 1849 while in the employ of D. W. Cole at Chelsea, Mass., planted and propagated the seedling grape of Mr. Wm. Bull afterwards called Concord. Going to Reading in 1854, he started a nursery, in the management of which he achieved an enviable reputation throughout the land. A co-worker with Cole, Wilder and Downing, a member of all leading horticultural societies, and a man of rare natural ability along these lines, he very soon took a commanding position in his chosen profession. His singleness of aim and lofty purpose met their due reward in this life.

Christian Theilmann was born June 6th, 1833, at Kieselbronn, in Baden, Germany. Coming to this country in 1854, he was married to Angola Schocke in 1856, at St. Louis, Mo., and in the spring of 1857 with his wife settled on his claim in Indian Creek valley, Wabasha Co., Minn., where they lived till called to the higher life. We copy from the American Bee Journal the following: "The first year Mr. Theilmann had to carry his provisions on his back from Wabash (thirteen miles), making the round trip in a day. In 1857 he hired four yoke of oxen and a twenty-four inch plow from neighbors and all alone broke the first six acres on his claim in two days, to pay for which he worked seventeen days of fourteen hours each mowing grass by hand." Thirty-nine years ago we enjoyed the hospitality of his log cabin and sold him some nursery stock. He was a great lover of fruit and flowers, and early became a member of this society. It was as a bee-keeper that he made an enviable reputation. Starting in 1869 with one colony of bees, found in the woods, he sold 25,000 pounds of honey in 1889, which, together with bees sold, brought $2,500.

In many respects Mr. Theilmann was a man of more than ordinary ability. His marked individuality, strict integrity and great benevolence caused him to be loved and respected by all who knew him. May the 20th, 1904, willing and anxious to go, he passed on to a higher destiny beyond the vale.

FOODS AND THEIR VALUES.

DR. MARY SNODDY WHETSTONE, MINNEAPOLIS

The best food is that which builds up the body and furnishes the most energy for the least amount of money. Specialists inform us there are about 1,000 material products known as food; about ten of them form nine-tenths of the food of the world. With this multiplicity, the buyer unless guided by knowledge in selection is swayed by caprice or the condition of the purse. The fact that adulterated material is put on the market makes the choice still more difficult.

The art and science of cooking involves a large and thorough knowledge of nutritive value of foods, and the laws of physiology and hygiene. As a science it verges on preventative medicine, in practice it is a prolific source of disease. What progress we have made in scientific cooking has been acquired largely by studying the work of the chemist.

In recent years there has been a trend of thought and investigation toward a better understanding of how to nourish the body with the least expenditure of energy and money. To this end the Department of Agriculture at Washington has caused analyses of foods and dietetic studies to be made among various classes of people in different parts of the country, including vegetable and fruit dietary in California. Among these have been the interesting bread studies of Prof. Harry Snyder, of the Minnesota Experiment Station. He has demonstrated that a second grade of patent flour is most nutritious because more easily digested than whole wheat products.

Every bill of fare should have four essential ingredients, protein, fats, carbo-hydrates and mineral matter. Protein is present in the albumen of eggs, curd of milk, lean meat, gluten of wheat and nuts. Fats are found in meat, butter, oils, corn and nuts. Carbohydrates are sugar and starch, all found in plants, fruits and cereals. Mineral matter is found largely in vegetable substances, in a form that is readily assimilated.

What of the physical effects from eating the different classes of food? People partaking largely of meats have nervous excitability and intensity but *not* endurance. An excess appears to overload the system, producing an accumulation of uric acid, to which may be attributed a long list of diseases, most common of which are rheumatism, appendicitis, diseases of the throat, respiratory organs and kidneys.

Dr. Alexander Haig, of England, has written a little book, "Food and Diet," that all may read with profit. He aims to show the harmful effects of eating foods containing uric acid. He recommends a diet of bread, cereals, milk, cheese, nuts, fruits and certain vegetables.

Of the essential foods carbo-hydrates are the cheapest because the most abundant; hence the tendency to eat too much. It is stated that the power to digest vegetable foods indicates a general well being of body conducive to long life. Dr. Cordelia Green, an authority on food values, states that those who eat vegetable foods freely, as grains, edible plants and fruits, have more reserve strength and endurance.

The foods that sustain the nervous system are eggs, milk, fish, all sea foods, wheat, oats, rye, barley, corn, peas, beans, celery, olives, and all the bean family, from medium to full growth, are rich foods. It has been demonstrated that it is more economical to human energy to take fats from nature's foods than to manufacture it in the body from starches and sugars. Hence nuts are of value. Fat is a nerve food. The nervous and those inclined to consumption should eat all the fats they can digest. If such an individual cannot digest fats, they should be aided by medical treatment. Olive oil is easily digested and will not fatten.

The mineral salts are found largely in vegetable substances in a form that is readily assimilated. For this reason a lack of vegetable foods seems to impoverish the blood. Mineral matter is necessary in the formation of bone and aids digestion. Interesting experiments are being conducted at an Austrian agricultural experiment station to increase the quantity of iron in certain vegetables. The first experiment was made with spinach. To the soil in which the seed was planted hydrate of iron was added. The result showed a percentage of iron seven times as great as in ordinary spinach, without injury to the plant. Spinach is known to contain more iron than any other vegetable, and for that reason it should be eaten freely by those whose blood is deficient in iron.

Many foods have the reputation of being indigestible that they do not deserve, such as hard boiled eggs, cucumbers, pineapples and nuts. The structure of all these is compact. Without being sufficiently masticated they afford little nourishment and thus undergo chemical decomposition.

President Roosevelt did the people a great service, when in one of his public addresses he commended a book called "The Simple Life," by Charles Wagner. The writer appeals to us to live out our own individuality and cultivate simplicity of thought, speech, needs and pleasures. Simple food is the secret of health. A study of the relation of food to longevity reveals that it has been attained by a simple diet. Ephraim Pratt, of Shutsburg, Mass., who died at the age of 117 years, had lived chiefly on milk. Thomas Parr, of Shropshire, Eng., living 152 years, was a farmer whose chief diet was milk and coarse bread. He was taken to parliament as a curiosity, and was fed a rich meat diet. By this act his life was prematurely cut off. A Berkshire plowman, when asked about his diet, declared that milk and oatmeal had been his only diet for thirty-five years. The United States government has been experimenting with the soldiers along this line and has demonstrated that one can live well on milk and cereals, and work hard many months.

Certain foods have a medicinal value that should be studied. Many of the common ailments may be corrected with appropriate diet, which is far better than medicine.

A vegetable diet is of value to persons given to high living, plethoric, with a tendency to rheumatism, gout, scurvy or Bright's disease.

Peas and *beans* are substitutes for meat if they agree. They may be made more wholesome by boiling until soft enough to press through a sieve, so as to remove the outer covering. *Beans* should be avoided by the obese, constipated or bilious.

Potatoes, parsnips, mushrooms, carrots, turnips, cabbage and *artichokes* are highly nutritious but are not so digestible as some others.

Potatoes are most nourishing and are fattening for nervous people and are particularly valuable for those inclined to rheumatism and gout, because of the large amount of alkali salts they contain, but should not be eaten by the dyspeptic.

Asparagus is easily digested but is not suitable for persons having excess of uric acid. It is used to induce perspiration and is soothing to the whole urinary tract.

Cabbage, cauliflower, Brussel's sprouts are cooling and laxative, purifying to the blood and a tonic, but those having a delicate stomach should partake sparingly. Such can eat raw cabbage more safely.

Celery is delicious cooked and is good for rheumatism and gout.

The *onion* is the most abused vegetable, but it is an exceedingly valuable food. None has more antiseptic and eliminating power, unless it is the carrot. Both should be eaten daily.

Onions given to children will expel worms. Red onions promote secretion of the kidneys; white ones eaten raw in the evening will promote sleep. Spring onions, before they become bulbous, eaten daily, are a remedy for rheumatism. Onions are almost the best nerve sedative known; are useful in nervous prostration, coughs, gravel and liver complaint.

Water cresses are an excellent tonic, stomatic and a remedy for scurvy.

Beets are very cooling and nourishing because of the large amount of sugar they contain.

If rheumatic avoid free use of *tomatoes, asparagus* and *rhubarb.*

Spinach is very good for the anaemic, rheumatic, gouty, also for kidney diseases.

Lettuce in large quantities is a sleep producing substance.

Of fruit values very much may be said, because they encourage the natural processes of the body. A diet entirely of fruit for a few days, if it agrees, cleanses a bilious tongue and starts the action of a sluggish liver.

Dr. J. Warren Achorn states that it is difficult to eat too many dead ripe blackberries, pears, peaches, sweet apples and grapes.

The ancients called *apples* the food of the gods. *Apples,* instead of fish are an excellent nerve food, as they have more phosphoric acid in an easily digested form than other fruits and contain as much nutriment as the potato. They excite the action of the liver, bowels and kidneys, prevent the formation of gravel, are useful in sea sickness and all other forms of nausea.

Grapes have so much medicinal quality that in Europe "cures," or sanatoriums, have been established for the treatment of consumption, diseases of the liver, dyspepsia, chronic diarrhea, dyspepsia, especially when accompanied with constipation and gout. With the grapes nothing is allowed but a little bread and water.

Tossot tells a story of a regiment of soldiers decimated by chronic diarrhea, which vanished in a marvelous manner, on encamping among a vineyard of grapes. Chronic inflammation of the bladder is relieved by eating freely of very ripe grapes, as they are a diuretic.

Raisins are very nourishing.

Linnaeus, the great naturalist, cured a severe attack of sciatica by eating freely of *strawberries,* as they are very rich in elements that are cooling, laxative and diuretic. They are of value to the plethoric and bilious, and inpsoriasis, a form of skin disease.

The pure, fresh juice of raw *cranberries* given freely, unadulterated or with equal parts of water, is an excellent means of relieving the thirst of fever. A Russian physician had fifty cases of cholera which resisted all treatment but were rapidly restored by small, but repeated doses, of cranberries. In thirst and vomiting of cholera, it is even more effective. A cranberry poultice is said to be of value in erysipelas.

Plums are reported to be a preventative of rheumatism and gout.

"Food is the only source of human power to work or to think." When people learn the therapeutic value of food more fully, they will be more willing to authorize the expense necessary to provide it.

"There is no wealth but life." Financially the United States is the richest country in the world. We trust that the time is not far distant when she may merit the words of Ruskin: "That country is the richest which nourishes the greatest number of noble and happy human beings."

ORIGINATING NEW VARIETIES OF FRUIT.

CHAS. G. PATTEN, CHARLES CITY, IOWA.

(Read before the S. Minn. Hort. Society.)

You have asked me to tell you how to originate "New Varieties of Fruit." Of course you mean good fruits, varieties that in some important essential are superior to the old. You have asked me a hard question, one that is exceedingly difficult to answer. How to produce the fruits that you want and that we need. How difficult it is will be partly answered when you learn that it will be thirty-six years the coming spring since I earnestly began to try, and now I must confess to you that I cannot tell you; or, at best, the effort to tell you will give only an approximate idea of how to do it, and, doubtless, that is all you expect.

The subject is a broad one. So much could be said upon it that would not come within the scope of a paper like this, and yet broad as it is we are restricted at every turn. Climatic influences, restricted environments, as in the Russian apples and Siberian crabs, or too much confusion of forces in the multiplied cross-pollenization of our American apples. In the first case there is too much undesirable heredity and consequent prepotency, and in the latter too much mingling of the better and the weaker elements.

In studying this subject we must ever bear in mind that "like begets like," and that that likeness is dominant just in proportion to the thoroughbred character of the plant or tree that we are seeking to improve or change. Every breeder of high class animals recognizes and acts upon this fact. And in connection with this fact, there is another one which is scarcely less important—vigor, or constitution of the individual.

Every breeder of plants and animals knows that in a group of either mixed or pedigreed stock there is one individual that for some more likely than not unexplainable cause is superior in size, color, vigor or constitution to all others in the group. Every nurseryman observes this when passing through his two or three-year-old apple grafts, that one tree will be much larger and finer than a score of others on either side of it. Why? Because in this instance there is a fitness or an affinity between the root and the graft that did not happen to exist in the others.

If you plant a hundred seeds of any of our cultivated apples you will discover great variations in them. They have been naturally crossed and re-crossed in the orchards with so many other varieties which grew on other soils and in somewhat varying climates, that variation in their offspring is very pronounced. Each individual plant is a unit and unlike any other plant of its kind, and when these units are blended together variations must occur; so that in selection, combination and cross-pollination, we have the three great sources of improvement. Prof. L. H. Bailey, in his "Plant Breeding," says: "Selection is the force which augments, develops and fixes type."

Residence of Chas. G. Patten, Charles City, Iowa.

Especially for us hardiness, or adaptation to climate, must always be of first importance in the development of improved fruits. If we wish to produce a commercial apple for the far north in Minnesota we should select for the mother stock the Hibernal. First, because it is of the highest type of hardiness, a vigorous tree, bearing large sized culinary fruit of fair color. We would cross-pollenize it with the Pink or Striped Anis, or perhaps General Greig. We cross with these varieties first because of their extreme hardiness, freedom from blight, fair productiveness and an appetizing quality of fruit in the Anis. If you desired a better fruit and more beautiful, with a chance of somewhat lessened hardiness, then use the pollen of Anisim, for from long experience and observation I have discovered that the pollenizing parent stamps its color on the new fruits.

Longfield, on account of its quality and productiveness, may be a very desirable combination for the north, but until we have tried we never know just what affinities exist between different varieties or how much vital force may be developed in the crossed offspring of two varieties which have been evolved from the different conditions of climate, soil and ancestry that have produced such distinct types or families as represented by Hibernal, Anis or the other varieties named.

As an example, witness the Patten's Greening, an undoubted cross with the Duchess and Rhode Island Greening, the latter neither hardy nor adapted to any part of the west, and yet the Patten's Greening has proven as hardy as its parent Duchess and very prolific.

If we want improved sweet apples, the same principle must apply, great hardiness, vigor and perfection in tree, freedom from rust and scab of foliage and fruit, strength of blossom, persistence in bearing—in fact, every element of strength that can be discovered in both the male and female parent must be carefully considered and combined if we obtain the ideal fruits that we desire.

I do not doubt that there are those here who would be very greatly pleased if they knew just how to produce the apple that would procure the thousand-dollar prize offered by your state society, but of course I am not going to tell you. Generous as we horticulturists are that would be an act of munificence that very few of us could afford. However, I am going to come so near telling you that there is little doubt that you can guess at the rest.

The chances that you have of producing hardy, long-keeping apples here in Minnesota are as one to twenty or, more likely, one to fifty. But what of it? It is no very great labor to pollenize enough blossoms to produce five hundred to one thousand seeds. You have three well known sorts, and there may be more, from which there is reasonable hope of success, namely: Wealthy, Northwestern Greening and the Patten's Greening. Should you cross the last two you may look only for green colored apples. But what of it? Grimes' Golden and Rhode Island Greening are as much sought after in the market as any other apples. If you pollenize the Wealthy and the Northwestern Greening you may get some red apples, unless there is great potency in the latter; if so, all the apples will be green. If you reverse the formula, using the pollen of the

Wealthy, the result will be colored apples. And if there is not too much heredity force coming from the Wealthy through its supposed crab origin, which I doubt, you will get some long-keeping apples. The Patten's Greening is the only one of the three varieties whose origin is positively known on one side, and with great certainty on the other, and it and the Northwestern Greening having in them the parentage of long-keeping apples, we may reasonably expect good results by crossing interchangeably these two varieties. All of these sorts have commercial size, appearance and fair to good quality. Even the Wealthy crossed on the Patten's Greening is likely to produce varieties of great value. The Tolman Sweet and Golden Russet should also be crossed on it to secure desirable apples for southern Minnesota.

Twelve years ago last spring we began at Charles City the work in connection with the Iowa State Horticultural Society of creating new apples by hand pollination, and whoever has entered into any line of research where the problems to be solved were untried, intricate and complex can in some measure appreciate the position that we occupy. We have made mistakes, they were unavoidable, and we have progressed slowly. But we think we are breeding up through the hybrid Siberian Briar Sweet crab and some of our larger and finer sweet apples, a distinct type or family of fine, hardy, sweet fruits. We shall make the third generation of crosses this coming spring.

It is now twenty-eight years ago since I crossed the Soulard crab, the largest of the Pyrus coronarius, or wild crab, then known, and which Prof. L. H. Bailey considers an accidental cross with some cultivated apple. In that cross I secured the first and most distinct hybrid with the wild crab of our forests, indeed I believe the only one that has ever been produced by artificial means. This hybrid was re-crossed again, and the past year one tree bore an abundant crop of pretty, fine-grained and palatable apples, of the third generation of hybrids with the wild crab.

Again I have a cross of twenty years' standing between the Duchess and Grimes' Golden, and many successful crosses between the Patten's Greening and Grimes' Golden, and if there were no other apples in existence than these two last mentioned crosses another generation of intelligent crossing and selecting would give early apples, keeping apples, commercial apples, delicious apples and hardy trees.

Finally permit me to urge again: if you would create large fruits and fruits of the highest quality, that you cannot do it through weak or weakened parentage. For hardy and vigorous as either parent may be, they must not be debilitated by excessive bloom, because the ripening of the flower is the supremest effort of the tree to perpetrate itself, and the strongest tree will be weakened by an abnormal or excessive bloom. Two-thirds or three-fourths of the bloom should be removed from the tree before the blossoms open, so that the generative forces will be concentrated in the flowers that you wish to pollenize. And for a like reason a large part of the bloom should be taken from the male or pollen-bearing tree, so that there could be no doubt as to the strength of its pollen in producing the highest type of its kind. Every observing fruit grower knows that when his trees are overloaded, that the fruit is small, insipid, lacking its natural flavor and dropping from the tree before its juices are perfected.

Hence the necessity of thorough cultivation, spraying and doing everything known to horticultural art to give potency, or life-giving power, to the germs, or seeds, that are to produce the hardy tree, and the beautiful and delicious fruit, for which we are earnestly and anxiously searching.

APPLES AT THE WORLDS FAIR, AT ST. LOUIS, 1904.

This show was the grandest the world ere saw!
Apple Day!—on this rare feast you might gnaw.
Minnesota had the best show from seed,
In rich "Object Lessons" she took the lead.

Sir Elliot gave us their pedigree,
In such clear style, that none could fail to see.
Then with his native Wealthy held them level
And "on the top shelf" did joyfully revel.

Wiscons' held a big hand with Wolf River!
He who lived on that was a good liver.
Another state—with more artistic worth!
Showed Wolf River, twenty-one inches girth!

Thirty-three ounces was marked as its weight!
We scoured a twenty-acre lot for mate.
Do you think this fair fraud the most unique?
"Apples of Sodom!" "Wooden Nutmegs!" peak!

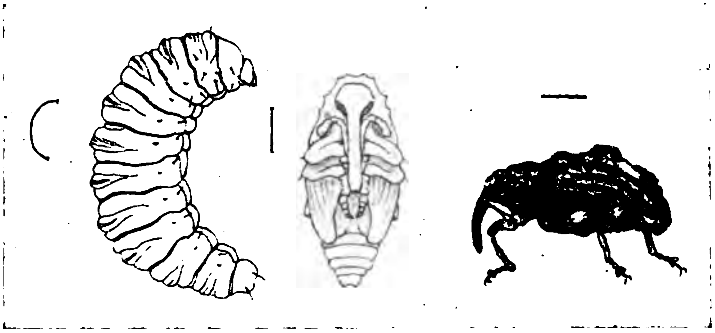
Perkins has eliminated the seed,
Now, Sir Elliot, what more do we need?
Solid pulp adds cash to the king of fruits,
Just how many millions no one computes.

—Sam Bucus.

THE PLUM CURCULIO A FOE TO APPLES.

PROF. F. L. WASHBURN, STATE ENTOMOLOGIST, ST. ANTHONY PARK.

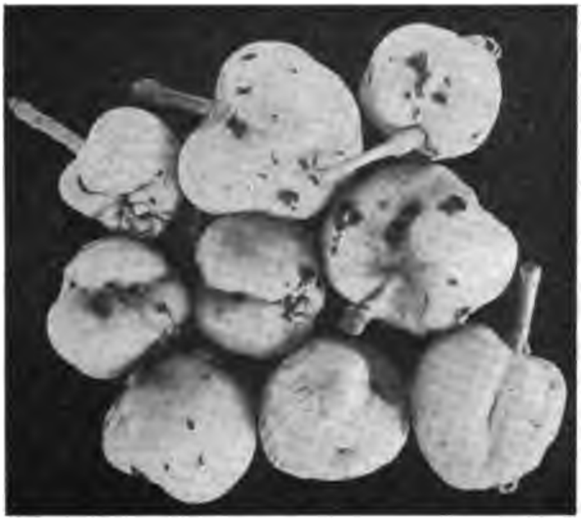
That this pest, which we associate so commonly with plums, does attack apples is not a new fact, since this departure from the orthodox food habits has been known for some time, but since apple-raising in Minnesota is, practically speaking, in its infancy, this naughty feature in the life of this weevil, illustrated by the loss in, at least one instance, of 100 per cent of the apple crop in a southern Minnesota orchard last season, is unceremoniously brought to our very door in a most emphatic and unpleasant manner. Several other orchards have suffered, to my certain knowledge, and there are probably many other instances of its work in apples in this state not known to me. I might add that I placed some of these apples in a breeding jar, and in September had a fine lot of plum curculios from the same. There is no doubt but that this curculio is to be regarded quite as much of a pest to the apple in Minnesota as the codling moth or even more.



Plum curculio, larva or grub, pupa and imago. After Lugger.

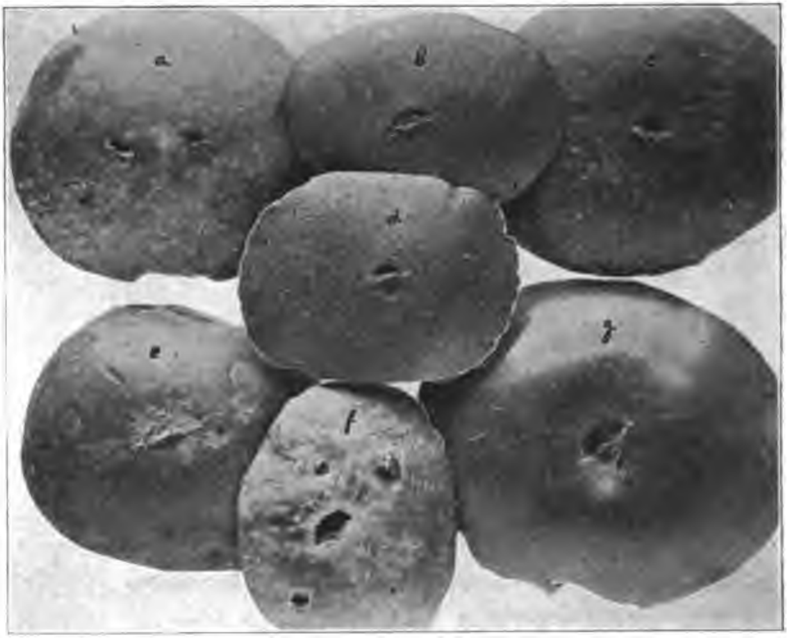
The plum curculio belongs to the family of beetles known as "snout beetle," or weevils, of which there are about 10,000 known species, which family causes a loss of over $30,000,000 annually in the United States. It is unnecessary to state that our little friend with the humps on his back, the plum curculio, does all he can, with other members of his family, to keep up his reputation as an evil-doer.

As a result of this weevil's attack on the apple we find the fruit dwarfed, misshapen, covered with ugly scars, and actually worthless as it falls to the ground, except for hog food. If one cuts into one of these worthless apples during midsummer, in July, say, the small whitish grub is disclosed, actively engaged in boring through the fruit, and waxing strong and fat preparatory to the time when, the apple fallen, he or she, as the case may be, will enter the ground to pass through a resting stage, or pupal stage, of two or three weeks, before turning into the imago, or perfect insect. This takes place before fall, generally in August, but the beetle does not mate upon emergence from the pupal stage. Its first instinct is to eat, and after lunching upon fruit for a while, by puncturing the apples, it winters under rubbish and leaves, deferring its courtship until the following spring. The first warm days of spring, after the fruit is formed, finds the lady curculio laying her eggs. Although the insect is single brooded, she continues egg laying for some little time, probably through the latter part of May and June, and possibly later, as though she were conscious that she had to do all she could before dying, in the late summer or autumn. Now insects must eat, as we all know to our cost, and while she is egg laying she, as well as the male, feeds upon tender leaf buds and leaves, and upon the fruit also. Before the fruit is large enough to tempt her to lay, in fact before it has formed and probably before she has mated, she varies her diet of leaf buds by consuming the petals of flowers as well. For obvious reasons we cannot spray when the tree is in bloom. This eating of leaf and leaf buds is a significant fact and a habit on the part of the insect which should be taken advantage of by fruit raisers.



Minnesota apples destroyed by the plum curculio. Original.

The method of egg laying by the plum curculio, shared to a certain extent by other members of the weevil family, barring the crescent-like slit, is curious enough. She first punctures and eats a small hole into the pulp of the fruit; she then turns about and lays one oval, whitish egg in this hole. Her next move is to make a crescentric cut in one side of the egg puncture, eating the tissue until she gets partly around and below the egg. This is the usual method followed, though it may vary in minute detail. Evidently this crescent, which practically undermines the egg, is made so that the tender egg may not be crushed by the growing pulp of the apple or plum.



Details of injury to apples: *a*, egg punctures with larvæ living in the pulp and the punctures beginning to decay; *b*, *c*, *d*, egg punctures beginning to heal, as eggs never hatched; *f*, badly stung portions of an apple; *e*, egg puncture nearly healed; *g*, scar in depression.
Stedman.

Of course, if these "stings" are made when the fruit is well along in its growth, and the egg does not hatch—and it is to be noted that only a very small proportion of the eggs laid ever reach the mature beetle stage—or if the puncture made at that time is just for feeding purposes, it does not spoil the apple, though the fruit, which would show the scar, could not then be classed as first grade. And if, for any reason, when the apple is small the female does not lay an egg in the puncture or if the egg fails to hatch, the young apple will probably outgrow the injury. These "stings," however, form starting places for decay and allow fungoid diseases, which would not otherwise perhaps gain an entrance to the interior, to enter the fruit and play such havoc that the apple is made valueless. It is said that it takes from five to seven days for the egg to hatch, and that the larva, or grub, lives in the apple from eighteen to twenty-one days. It is further claimed that "if the apple does not fall to the ground when the contained larva is half grown, the development of said larva stops, and it dies." (Stedman.)

The adult beetles have wings by means of which they fly, sometimes for long distances, in search of suitable places in which to pass the winter. It may be said, however, that they hibernate, for the most part, under fruit trees, particularly if there is rubbish there or if the ground is in sod which is not disturbed.

Now, in the orchard to which I referred at the beginning of this article, where practically all of the fruit was destroyed, ideal conditions appear to exist for the encouragement of this evil: An old orchard, sprayed one year only—in 1902—sod growing undisturbed for several years beneath the trees, no stock of any kind allowed to run in the orchard, and numerous plum trees in close proximity. This is one of the oldest orchards in southern Minnesota.

I have given the habits and life history of this pest in some detail, for you all know the necessity of knowledge upon these points in order to combat any pest successfully. From the foregoing facts certain measures of relief appeal to us as practical: for instance, spraying frequently in the early spring and summer, jarring the trees in the cool of the early morning and catching the beetles on sheets below. One enterprising apple grower, however, makes the statement that he gets just as many curculios by jarring between six and seven o'clock in the evening as at any other time. He uses a cheap spread, about fifteen feet square, attached to poles along two opposite sides, so that it may be easily rolled up, and having a slit to the center into which the trunk slips. Jarring the apple trees is continued by him from the time the fruit is the size of marbles until he can catch no more beetles. This seems a good rule to follow.

It should be noted in this connection that jarring means a sudden, forcible blow, padding the stick or mallet used so as not to injure the bark; not a shaking of the limb, the latter simulating the action of the wind so closely that the beetles would not be sufficiently alarmed to drop and would cling to the twigs until the shaking ceased.

The ground in an infested orchard should be plowed every fall for a while, or both fall and spring, and stock, such as hogs and chickens, should have full access in order either that the fallen fruit be eaten before the grub emerges, which would be the best and safest plan, or the grub after emergence be scratched up and devoured by hungry fowls. Plum trees should not be planted in the immediate vicinity of an apple orchard, nor should apple or other orchards be planted near a forest or wooded area, since not only does the plum curculio like to winter in wooded tracts but many of our other orchard pests were originally insects of the forest. Above all, it must be remembered that an ounce of prevention is worth a pound of cure, and these remedial measures must be applied in a timely way: for instance, spraying, to be of any use, must be begun before the eggs are laid or, rather, frequent applications should be made during the entire period of egg laying, from the middle or last of May, and before, to possibly as late as the middle of July. The writer would suggest one or two sprayings before the blossoms open, and every ten days after the blossoms fall until the end of the laying season, and jarring, should be persevered in during this period. For spraying we would suggest using 1 lb. of Paris green to every 160 gals. of water, and the addition of a little quick lime to prevent any burning. As all are well aware, spraying in this way would also kill any other insect pest feeding upon leaf, twig or fruit. Plum trees infested with plum curculio should receive the same treatment. The writer would suggest using quite a little more lime or lime water when treating plums, as the plum foliage is more tender than that of the apples. A better and safer spray than Paris green, and one rapidly coming into flavor, is Arsenate of lead, sometimes called Disparene. This can be used of almost any strength (three to six lbs. in every 100 gals. of water) without injury to trees, and remains on leaf and fruit much longer than Paris green. If a long continued and copious rain immediately follows a spraying, it is safe to conclude that much of the poison has been washed off and spray again. I note that Stedman suggests, in recent publications regarding this same evil in Missouri, the working of the soil in the apple orchard in July and August, a shallow plowing and thorough harrowing about the middle of July, followed by two more harrowings between that date and the middle of August. This would seem to be a valuable adjunct to the other work, inasmuch as it would disturb the ground at a time when the beetles were pupating just below the surface.

If not one but all the measures of relief above outlined be followed for a few years, the injury to the apple by this pest is bound to be very much reduced if not made to disappear altogether. Even one of the above remedial measures if followed faithfully and intelligently will cause a marked improvement in this evil.

Recipe for making Arsenate of lead: Dissolve 11 oz. acetate of lead (sugar of lead) in 4 qts. of water, in a wooden pail, and 4 oz. arsenate of soda (50 % purity) in another wooden pail. The sugar of lead can be dissolved more quickly by using warm water. Pour these solutions into 150 gals. of water. Arsenate of lead can be purchased already prepared. It is to be noted that Disparene, being much more adhesive than Paris green, will withstand considerable rain.

It is important to note in this connection that if one is using Bordeaux for early spraying for scab or other fungous diseases adding an arsenical poison (Paris green for example) to the Bordeaux will serve good purpose against the plum curculio, and other leaf and fruit eaters.

The President: I presume I am somewhat responsible for this paper by Prof. Washburn. I will have to plead guilty to being the possessor of the orchard described by him, and this trouble has appeared to some extent at my old location. The orchard is one of the oldest in our section of the state; I think the trees are nearly forty years old. Ever since I have been there the fruit has been nearly destroyed by the curculio, and in the three years that the orchard has fruited we have lost nearly three-fourths or, at least, one-half of our fruit. While that apple (indicating the model) represents perfectly the punctures it does not represent the misshapen appearance the fruit has resulting from those wounds. It is about as misshapen as anything that could be conceived as the apple continues to develop.

Mr. H. L. Crane: I would like to inquire whether this gouger or plum curculio is the same as the apple curculio?

Prof. Washburn: It is not. The apple curculio puncture is a round hole and looks as though a knitting needle had pierced the apple.

The President: I would like to ask why it is that it has only recently attacked our apples, although it has been with us for years. Why did it not attack the apple long ago? I do not think this orchard has suffered for a longer period than I have mentioned. Evidently it must have been in existence before, but why was not the orchard attacked before?

Prof. Washburn: Have you treated your plum trees for curculio?

The President: No.

Prof. Washburn: They have been increasing, and as a new food opened up to them they liked it better.

The President: The plums have been disappearing, and the apples have been increasing.

Prof. Green: About eight or nine years ago Mr. Dartt had many of these deformed apples. I visited his place at one time when he showed me the apples, and he recommended spraying the buds, and especially recommended what Prof. Washburn recommends, spraying with arsenic, and he practiced it up to the time of his death. Mr. Dartt was one of the first to raise the subject in this state. Prof. Washburn spoke about spraying plums. I frankly confess that I have tried the spraying of plums a good many times, but I never yet have done it when I at all felt sure that it would do any good. It is almost sure to burn the foliage; it has occurred time and time again, and I have always had trouble.

Prof. F. L. Washburn: If Arsenate of lead is used there will be no trouble about burning. It is rapidly taking the place of Paris green and is used very much in the east.

Prof. Green: Does not the apple curculio produce the same results in the apple as the plum curculio?

Prof. Washburn: No, it does not; the apple curculio can always be recognized by the puncture in the apple.

Prof. Green: Well, I was speaking about Mr. Dartt's apples.

Prof. Washburn: It was probably plum curculio. I remember the facts very well. I think I called there in company with our president.

Mr. O. M. Lord: Mr. Kerr, of Benton, Md., told me he had sprayed his plums three times during the summer with the purpose in view of keeping away the insects and protecting the fruit, and he could see no benefit at all. He used Bordeaux mixture.

The President: Does he use a poison with it?

Mr. Lord: Yes, he uses Paris green with it.

Prof. Washburn: Spraying is misjudged frequently. The results are often disappointing to a man because he does not follow the right directions. Perhaps he has not got his liquid in the right condition, or he may have sprayed at the wrong time. There are a good many things to be thought of and considered in connection with spraying.

Prof. Green: All I know about it is that Mr. Dartt tried it with excellent results.

Mr. C. W. Spickerman: What do you think of London purple?

Prof. Washburn: It is very little used for this reason, that it remains longer in the water without liquifying, and the amount of arsenic is very variable. That is what you are after. A certain per cent of arsenic in good Paris green is always present, and there is not so much variation; so you do not use too much.

Prof. Hansen: It would be well to emphasize the fact that there has been so much objection to Paris green of late years. I find there is so much adulteration of Paris green that the old formula will not work at all. That is where we find the Ethiopian in the wood pile; we do not know what we are using in many cases.

Mr. J. W. Merritt: What do you think of spraying before the leaves start?

Prof. Washburn: I should not spray for plum curculio before the leaves are out.

Mr. Merritt: I spray my plum trees—three or four hundred of them—before the leaves start, and I do not spray them after- I have never had finer plums than I had this year.

Prof. Washburn: Do you know whether you would have had plum curculio if you had not sprayed?

Mr. Merritt: I don't know.

Prof. Green: I have tried spraying plums and once in a while have been successful, but I have had so much injury done through spraying of our Americana plums that I let somebody else spray their plums, but I am not going to spray mine. I am afraid to spray with Bordeaux mixture unless it is very weak. The way I have kept back the curculio has been done entirely by jarring, and I have been able to hold them in check in good shape by attending to the jarring of the trees when it was time. What I say about spraying plum trees has reference to arsenites. My experience is not entirely exceptional. Some of the big New York growers have had the same experience. With the apple we have good results, but with the plum I question whether it is a benefit. It may be done successfully in some seasons, but the conditions vary so much. Some time ago I went with Prof. Taft, of Michigan, all through the peach belt inspecting the orchards. I had a good talk with him on the subject, and his experience was identical with mine in regard to the spraying of the plum.

Mr. Crane: Does it do any good to spray for curculio before the blossom comes out in the bud?

Prof. Washburn: I should say just before the leaf bud begins to open. I think it may when the tree is in bloom.

Mr. J. W. Merritt: A man from Michigan recommended that I spray for plum curculio before the bud started at all to blooming.

Prof. Washburn: I think that must be a mistake. In order to kill the curculio they must eat something, and they will not eat the tough bark or branches, so I cannot see how merely getting the Paris green on the trees would kill them.

Prof. Green: Was not that more particularly for plum pocket?

Mr. Merritt: He said it would kill many insects.

Mr. Martin Penning: As you know I am kind of a plum man. I had a good crop last year and a tremendous crop this year. I never spray, and I have some varieties that are stung by the curculio and some others that are not affected at all. A few years ago I had a preacher come to me from Cologne, and he told me his plums had been stung by curculio, and he asked me about mine. I told him I did not see any on mine. He said I did not know what plum curculio was. We had dinner, and after dinner we went out into the orchard and I asked him to show me some curculio, but he could not find a single one. I cultivate every week, and after every hard rain I cultivate, and I keep the ground in shape with the weeder. The chickens also have free range of my orchard, and I raise lots of plums.

The President: I think Mr. Penning is a practical man in every respect and safe to follow.

HOSPITALITY.

MISS MARGARET J. EVANS, NORTHFIELD.

The very word is like a bell, not to toll us, like Keats' word "forlorn," back from the ideal to the real, but to charm open to us the realm of beauty in the practical world; a word like the famous "Mesopotamia," with the utterance of which, it is said, a fervid orator could bring tears from any audience.

Of hospitality Moses and other sacred and profane historians have written; prophets have commended it; apostles enjoined it; poets lauded it; minstrels sung it; the nobles of all ages from Abraham to the honored hostess of today have practiced it.

Hospitality graces all who offer it. Milton could think of no greater charm to give to his heroine Eve than:

* * * * * * * * "In haste
She turns, on hospitable thoughts intent."

Shakespeare could add no truer touch to depict an ignoble nature than his:

"My master is of churlish disposition
And little recks to find the way to heaven
By doing deeds of hospitality."

One of the greatest commendations of Scripture is: "I was a stranger, and ye took me in."

Hospitality, like the hunger of which George MacDonald writes, has its many phases, its great stairs of ascent from the child's "Come into my playhouse," up the white steps to the glorious hospitality of that home whose entrance portal is one pearl and whose many mansions lack never the welcoming "Come, ye blessed." But it is only the practical phases of hospitality in the home which may claim our thoughts today.

The function of hospitality is to take others into our homes, our minds, our hearts, our very souls, as welcome guests there—and thereby give them profit or pleasure. Its means are a home and a hospitable spirit. Whoever has these has the means, indeed all the absolute requisites, of hospitality. The home may be only like that of which Charles Warren Stoddard speaks in his *"South Sea Idylls,"* "A hut, woven like a wild bird's, of canes and grasses and hung with pungent herbs," and yet be, like that home, ideal in its hospitality. There he found the home spirit and a hearty welcome, since the invitation was extended to the traveller at the first meeting of the eyes: "There is my home and yours also," and "the only sorrow in the home was that the guest couldn't eat every hour."

The true spirit of hospitality necessarily includes a hearty welcome. It is easy to give that to invited guests—unless the wish to pay off social dues be the predominant motive. That motive is least worthy of all and has little tending to make a guest happy.

A hearty expression of welcome to invited guests adds a charm to every visit. A returned missionary says that a rare charm was once given his entire visit at an elegant home because his host, as they crossed the threshold of the house, said: "My house is honored by having you, and in you the great work which you represent, under my roof."

To find a welcome for the uninvited guest is not so easy. But that natural feeling of annoyance caused by the interruption to the routine of the day by the advent of an uninvited friend may be changed by a minute's thought to joy at the opportunity thus presented to come into contact with one another personally. One thought may always create a welcome for an uninvited guest: "I need the one who needs me." That which we give enriches us, and a visitor is an opportunity to give ourselves and thus enrich ourselves.

The chance friend breaks up, too, the monotony which is the bane of the ordinary home and deserves welcome for that reason. He enlarges our sympathies, our power to feel with others. Every occurrence which takes our thoughts, even temporarily, from our daily routine deserves a cordial welcome, even if other duties seem to claim us.

The true spirit of hospitality requires a welcome also for the unexpected, incidental visit of strangers as well as of friends. Even the itinerant lightning rod agent or the nurseryman with his impossible trees and shrubs compensate for their theft of time by the glimpse they give of a different human nature; and we owe them something if their persistency can give us that valued gift, a good laugh.

An itinerant Sunday school or church missionary deserves his welcome despite the extra trouble he causes, for he, too, contributes to life, even if only for an hour, variety, a change of thought, a new point of view, a glimpse of larger, better things.

It is rewardful to entertain such guests at the family table. It was a wise mother who once said, "I welcome for my children every opportunity to be at table with invited or chance guests, or strangers. The conversation is often the best kind of an education for the children. They are helped to get over their shyness, they learn self-restraint and practice their lessons in good manners. It is a course of practice in social culture; even if the guest is awkward and uncultured, they take warning from him or learn not to laugh if he scalds his mouth with hot tea or overturns his plate; strangers often give me, too, a text about correct behavior."

The additional work imposed by chance guests is, indeed, a good investment and brings profit in the great business of home-making and home education.

Interchange of visits between city and country folks is also profitable. City friends are not always able to adjust themselves gracefully to country conditions and prove a burden; but they, too, bring in new and enlivening ideas, many of them, whether worthy or not of acceptation, stimulating to consideration and reflection.

The visit of the country dweller to the city home gives equal profit, and the pleasure of "comparing notes" is not to be despised. Those of us who live in the country or in small towns would find it advantageous to make as great an effort and exhibit as great determination to secure a few weeks in the city in the winter as the city family make to have a summer outing in the country. It might be done with little more effort than that by which the summer outing is secured. The effect might not be that which the flamboyant imagination of a city reporter sees, but the conclusion would doubtless be the same happy one. As the city reporter sees it: "The modern city is a magnificent training school in quick wittedness. It takes the incoming ruralities, whether foreign or domestic, chokes them rudely but healthily out of their habits of doddering along, puts jump, snap, ginger into them, and soon they are alive throughout; they have good circulations; their brains are fed with hot, bright-red, thought-producing blood. And then their awakened intelligence teaches them that the country is the place to live." Some of us, however much we may resent his view of "ruralities," can agree at least with the last sentence.

A hospitality which brings different types of people together must ever be helpful—what has occurred in St. Louis this year, the exchange of a tendency of that city and of the whole state of Missouri toward provincialism for a new tendency toward cosmopolitanism. Every "getting together" of people of different habits and thoughts is good.

A recent trenchant fictitious sketch of a mother-in-law represents her as saying to the new daughter-in-law: "You know, my dear, Reginald would prefer to remain at home with his pipe and a magazine than to hear the greatest prima donna that ever sang." Whereupon the bride comments: "Now, the enjoyment of physical comfort is a conspicuous masculine weakness, sympathy for the infringement of it the surest work of sympathy that can be extended to any man. But all the same, I know it is not good for him to be encouraged in the idea that he is abused every time he sacrifices his physical comfort to me or to any one else."

It is not true kindness to a family to let the idea of physical comfort predominate in the household. There are higher considerations, such as benevolence and sacrifice, for the sake of contact with other minds, the acquirement of social adjustability, the lesson of the art of making the home the best society.

A world-renowned gentleman was once asked, "Do you go much into society?" "Yes," he answered; "constantly. My wife and daughters are the most fascinatingly interesting and social people I ever saw. We have a rich social life at home when we do not go out; but we all go a good deal and gather from others the intellectual plants that blossom for us at home and, under other forms, for our guests as well." The daughter of this man said, on the other hand: "Mamma says she has never met any other man in the world who is so mentally stimulating and hospitable all around as father, and we girls think so, too; but we get different grades and shades and tones and qualities of life from each one whom we meet." In homes like this, narrowness of outlook and of judgment become impossible, and stagnation and pettiness are unknown.

The self-abnegation which shows itself through frequent hospitality is rewarded by producing this fine social life of the family. It gives that social adjustibility which is said to be "the primary requisite of a real and vital social life."

The spirit of true hospitality implies also that host and hostess make the gift of the real and not of the superficial elements of the home.

Charles Wagner, whose book, *"The Simple Life,"* won from Mr. John Wanamaker the tribute of the purchase of several hundred copies for gifts to his friends, and from President Roosevelt his high commendation as he introduced the author not long since to a Washington audience, tells a significant story of a certain mayor in one of the subprefectures of France near a summering place of the emperor. The mayor's head was turned by the thought that his sovereign might one day descend one day upon his home. At once the house of his father, where family traditions had been sacredly preserved, all the simplicity in which his ancestors had lived, appeared to him poor, ugly, ridiculous; out of the question to ask the emperor to climb the wooden staircase, sit in the old armchairs, walk on the superannuated carpets; so he remodelled the house, made a great drawing room out of all proportion to the rest of the house, spent all his money, upset his household. Alas! the end of the empire came, but the emperor never! Surely the world does need well-tried individuals, each of whom has his own value, his own trademark which distinguishes him from every other person, and that, joined to the distinctive qualities of others, make the wealth and strength of the community.

The individual draws this unique something which distinguishes him from others from the "assemblage of memories and practices which constitute the home where emanates an atmosphere in miniature." Destroy all this, as Mr. Wagner says, "and we indeed dry up the sources of character and sap the strength of public spirit." Each home gives its own moral imprint, has a unique personality which no other home nor place has. To give a share of this unique quality and individuality of the home to guests is to bestow rare and real value. O, the wearying sameness of the modern city houses! You may tell before the door is open the appearance of the hall and reception room and almost of any piece of furniture in them. It is impossible to give genuine hospitality where no gift of individuality is given. True hospitality admits to the soul of the house. "Everything that a true home contains is bathed in an ether of personality." That personality of the home, true hospitality shares with its guests.

The spirit of true hospitality has also simplicity as a cardinal principle. Simplicity consists in putting aside non-essentials and emphasizing the essentials. The absence of non-essentials in the home may make a beautiful simplicity and be an aid in hospitality.

An elegant home, fine furniture, costly china and glass, superfine linen, non-essentials of hospitality, and which are always the shell for the real soul, often interfere with true hospitality. Joy is the purpose of hospitality, to give pleasure, and ostentation is its great foe.

To invite guests in order that they may admire ourselves or our possessions is a sin against hospitality; while preparations may be necessary to make guests comfortable and that the skill of the housekeeper may not be discredited, the charm of hospitality lies in the fact that it is no burden and that the ordinary family life is not too much disturbed.

The principle of simplicity covers also the supply of food for guests. Food is a symbol as well as a nourishment. In hospitality it is a means and should never be an end, a means of getting together upon the plane of natural appetite, that great equalizer. All are equal at the table, yet every meal given in hospitality is a symbol, a sacrament and ought not to be degraded to the pampering of the palate. Not irreverently we may say as does Paul of the most sacred sacrament: "Have ye not houses to eat and drink in?" A few dishes perfectly cooked and daintily served, not exceeding in variety or number what can easily be made ready, this is elegance—which means only that which is carefully chosen—as well as simplicity; the simple supper of one kind of whatever is offered, so simple that it does not differ materially from the ordinary family meal, gives more pleasure to sensible guests than elaborate menus can give, and their simplicity would make hospitality more frequent.

Wanted, women who give such hospitality as a regular part of the privilege of life! One such woman I count among my friends. In feeble health, never without pain, with shattered nerves, she keeps one maid of all-work, who cannot, however, be of such service as a daughter, denied to her, might be in the house. She believes in simplicity and practices it—as she has had at her supper table in groups of from two to eight, for the most part, a hundred and forty-eight guests in the ten months of this year in which she has been at home. She has had these guests without weariness to herself and without a sense of burden to her guests, because her aim has been to have her table served with only the few dishes which the family would have had and have each dish perfect of its kind, and to have the table service perfect in its spotlessness and in the one spray of flowers or potted plant which has been its decorations. The test of her hospitality has been not: Did they like my cooking or my housekeeping, but has there been good talk? Did we draw near together and feel the touch of human sympathy? Did I give myself freely for the joy of my guests? Such has hospitality been to her, and it has strengthened the friendly bonds of an entire community.

Superfluity and superabundance are a burden to hostess and guest and in bad taste. Mrs. Ogden Goelet rightly reproved a girl who excused a gross extravagance by saying: "Well, you know, I can afford it," by replying, "That principle would excuse your cook for oversalting the omelet because salt is cheap."

Wanted, more women who can hear as calmly as one hostess did the remark of an evening guest: "Oh, I could have company often, too, if I were only willing to put them off with chocolate or coffee and cake!"

But even simple refreshments are unnecessary on many occasions where they are usually served. We need most in social intercourse mental stimulus, conversation upon the great subjects of thought. Some of us need the intellectual enlivening of reading circles, study classes or clubs, where some topic, book or phase of philanthropy will give subject for research, thought and conversation. Is it true, as has been written to me, that many such clubs would be formed among country women were it not for the burden of refreshments laid upon the hostess of the day? One club at least in one of our larger Minnesota towns is suffering from that same burden. But scores of clubs flourish without even the symbolic cup of tea to suggest physical needs. A recent letter says: "I know of a club of ten members that met weekly for fourteen years, and there was never a sign of refreshments at any of their meetings, and the members can testify to enjoying the meetings much better than if they had felt the responsibility of always seeing that something to eat was provided."

The country home, like the city home, gives true hospitality when it gives itself for an afternoon or evening without an offering to the palate. Groups of women in my neighborhood might find great profit in little reading circles if the really hospitable thought of giving the personality of the home instead of food prevailed.

An Englishman objected to American dinners on the ground that the first course was always "roast hostess." The hostess of all little reading circles where refreshments are to be provided would be sure to be an abstracted listener before they were served, and a distracted one later.

The great gift of hospitality is that of the personality of the home, that which makes it different from all others, that of letting our books, our furniture, our belongings speak their own message to our guests. It is the gift of ourselves in our best thoughts, our views of life, our impressions of what we have read, our highest aspirations. Such hospitality receives honor from those who share it. Samuel Rogers' long poems have been forgotten, but the table talks of his breakfasts have perennial charm. The echoes of the spirited discussions on great subjects in the evenings of Charles and Mary Lamb give today melody which the Elia essays or the Tales from Shakespeare do not excel.

The oak and the linden or basswood may well speak their myth to us. When two weary travellers, refused hospitality at all other doors, were received into the poor hut of Baucis and Philemon in old Phrygia, upon the broken table, the olives and wild berries and eggs cooked in the ashes, they were pleased as heartily as if they had furnished a feast and as if the earthenware dishes and wooden cups were daintiest china. But when the poor wine, as fast as it was poured out, renewed itself in the homely pitcher, Baucis and Philemon recognized heavenly guests and desired to offer to them a sacrifice of their sacred guardian goose. But Jupiter and Mercury forbade such costly offering, saying: "We are gods. Quit your house and come with us to the top of yonder hill." And behold! all the other houses paid the penalty for their inhospitality by being sunk in a rising lake. And then columns took the place of the common posts of their own home, the thatch grew yellow and appeared a golden roof, the floors became marble, the doors were enriched with carving and ornaments of gold, and Jupiter said, "What favor have you to ask?" "We ask to be priests and guardians of thy temple, and that one and the same day may take us from life." In great age, on the steps of the temple Baucis saw Philemon begin to put forth leaves and, Philemon changing in like manner, a leafy crown grew over their heads. "Farewell, dear spouse," they said together, and at the same moment the bark closed over their mouths. The Tyanean shepherds still show the two trees, an oak and a linden, standing side by side. Every house becomes a golden roofed temple and every host and hostess are transformed, even if their guests are neither gods nor angels, by true hospitality into forms of perennial beauty.

The spirit of poetry and beauty in hospitality has never been more truly portrayed than by Dr. Grace Denny: "The cause of hospitality lies not in man's environment but in man himself, and to find it in its purity we must search for it at the spring of his life, in childhood." Here are two infants who have never met before. They pause and regard each other for some moments with grave, neutral gaze. The one approaches, clasps chubby arms about the other and with earnest effort carries him to a seat, the supremest act of hospitality his small world affords. It is royal that, being carried. But what says the act? The sublimest thing it has been given man to say, "I care for you." In the world's early morning man made his first great discovery, "I need you." There followed shortly upon it his first great confession, "I care for you." He has made no greater discovery, no greater confession since. He can make no greater. "I need you," sounded Gethsemane's pain. "I care for you," measured Calvary's glory. There's naught beyond.

CONSTITUTION OF THE McLEOD COUNTY HORTICULTURAL SOCIETY.

ARTICLE I. This association shall be known as the "McLeod County Horticultural Society," and is an auxiliary to the Minnesota State Horticultural Society. The object of this society shall be to promote Pomology, Horticulture, Arboriculture, to disseminate information concerning the propagation and cultivation of such fruits, flowers and trees, both deciduous and evergreen, as are adapted to the soil and climate, and to encourage the improvement and beautifying of homes in McLeod county and vicinity.

ARTICLE II. Any person may become a member of this society by paying into the treasury the sum of One Dollar annually, which sum shall also make such a person a member of the "Minnesota State Horticultural Society," with all the benefits accruing to other members. The wives and daughters of members may also become honorary members without the payment of fees, and are cordially invited to take an active part in making this social as well as beneficial.

ARTICLE III. The officers of this society shall be a president, vice-president, secretary and treasurer, who shall be elected at the annual meeting, and who shall hold their offices until their successors are elected and qualified. There shall be an executive committee of five members consisting of the president, vice-president, secretary, treasurer and one other member appointed by the society.

Every township that has a member in this society, in this or adjoining counties, may have a director whose duties shall be to promote the interests of this society in his district, to secure members and organize a local auxiliary to this society, and for such purpose where three or more members form an auxiliary in a township the director may retain twenty-five cents of the One Dollar membership fee for paying necessary expenses of local auxiliary.

The executive committee shall have charge of all matters pertaining to the interests of the society. They may call special meetings by giving twenty days' notice through local papers. They may arrange for an annual fruit and vegetable exhibit and fair in the month of September or October, as they may deem advisable.

They shall solicit and arrange for Farmers' Institutes in the county, and they shall appoint an auditing committee.

ARTICLE IV. The president shall preside at all meetings, have a general supervision of all horticultural interests, and appoint such officers and committees of the society as may be authorized by the executive committee.

ARTICLE V. The secretary shall keep a record of the doings, collect membership fees, receive and answer all communications, establish and maintain correspondence with directors of townships, aid the president in the dispatch of business, and make an annual report to this society, and to the secretary of the state society on or before Dec. 1st of each year of the doings of the society, membership, etc.

ARTICLE VI. The treasurer shall hold the funds of the society and pay out the same only on the order of the president countersigned by the secretary. He shall make a report of all the receipts and disbursements at the annual meeting and at such other times as required by the executive committee. As one of the executive committee he shall take an active part in promoting the interests of the society.

ARTICLE VII. By-laws and alterations to the constitution for the purpose of meeting the future wants of the society may be enacted by vote of two-thirds of its members present at any regular meeting.

BLACK ROT OF CABBAGE.

PROF. SAMUEL B. GREEN.

This disease is occasionally very troublesome, and our cabbage growers complain of it more and more each year. It is very certain that when the soil is once inoculated with it, it will be a long time before it can be thoroughly cleaned out of the soil. In some experiments carried on at the Geneva Experiment Station, it has been found that there is no satisfactory method of controlling the disease after a field has become infected, and the only way to do is to use new land, and to allow the infected land to rest for a number of years, and it had best be used for the growing of grasses and grains. It should not be used for the growing of turnips, as this disease will grow on them, and it will also grow on mustard and other plants which are nearly allied to cabbage, and this would tend to keep the disease in the soil.

The conclusion of this experiment station bulletin is that much of the cabbage seed on the market is contaminated with the germs of the black rot disease, and that some of these germs may survive the winter and become a source of infection to the young cabbage plants. As a precautionary measure it is advised that all cabbage seed be disinfected before sowing, by soaking for fifteen minutes in a 1-1000 corrosive sublimate solution or in formalin, one pound to thirty gallons. It is not expected that this treatment will prevent root infection in infected soils, but it may be safely relied upon to prevent all danger from infected seed. It will not injure the germination.

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Secretary's Corner.

THE SOCIETY MEMBERSHIP.—The annual membership roll now contains 1688 members, and adding to these the life members brings the total membership at this time up to 1832, which is 164 more than last year at this time.

APPLE TREES IN THE RED RIVER VALLEY.—Rev. O. A. Th. Solem, of Halstad, whose place is on the open prairie a few miles south of Crookston, in the Red River Valley, reports that his apple and crab trees have wintered nicely and look healthy, notwithstanding they have had there nearly an open winter.

ONE OF OUR VETERANS.—A recent communication from Mr. Frank I. Harris speaks of Mr. J. C. Kramer, who is well known to our older members as one of the most enthusiastic, practical horticulturists in the state. Mr. Harris writes that he is in good health, but totally blind. Mr. Kramer is a resident of LaCrescent, a near neighbor and during a long period an intimate friend of the late J. S. Harris.

QUESTION ABOUT THE NORTH STAR APPLE.—"Does any member of this society know anything about the North Star apple? I understand there are several by this name; the one I have reference to is one originated in Maine from the seed of a Duchess. I have two trees at my place I purchased in Rochester, N. Y., two years ago last spring. They seem to be absolutely hardy and are the best flavored apples I ever eat. If they are as desirable as they appear I would like to plant more of them." J. P. Brown, Eureka.

BETA GRAPE PLANT PREMIUMS.—In putting up the plant premiums which have recently been sent out to our members it was found that there was considerable shortage of Beta grapes, as a large number had called for them, and instead of substituting something else it was thought better to postpone sending them until fall; so that those who selected Beta grapes for plant premiums this spring will receive them next fall instead. We regret this delay, but as there is a popular demand for this grape and the fifty allotted was far exceeded, it seemed best to make this arrangement.

MEDALS FROM WORLD'S FAIR.—Those to whom medals on Minnesota fruit were awarded at the late World's Fair will be interested in the following extract from a recent communication from F. W. Taylor, Chief of Horticulture. "It is not known when the medals will be ready for delivery, but I trust it will not be long hence. They will be sent to the Superintendents of the various Departments, those for Minnesota going either to yourself or the State Commission. Those desiring the actual gold or silver medals can have them by paying the cost of minting. I am sorry that I cannot answer you more definitely as to the time of delivery, but it is not possible."

A later communication, from John H. McGibbons, secretary of awards, St. Louis, under date of April 17, says: "You are advised that we are daily expecting the first installment of the diplomas to arrive, and their distribution will commence as soon thereafter as the final work on them can be completed. On account of delay in the work of finishing the models, the medals will not be issued for some time after the diplomas. The distribution of the diplomas and medals will be made as expeditiously as possible. We have not yet received from the Mint any information in regard to the weight or cost of a medal in gold."

This is all the information we have on this subject. When anything more is learned about the matter it will be announced in the Secretary's Corner.

PERKINS' SEEDLING APPLES.—A considerable quantity of apple seedlings have been sent out as plant premiums to the members of the society, and Mr. Wyman Elliot, who furnished these seedlings, wishes to call the attention of those who received them to the fact that besides the number to which each member was entitled, he put in an extra tree of the Perkins' seedlings, upon which he would like to have the recipient report, either to himself or to the secretary of the society, when the tree comes into bearing, at the same time sending a sample of the fruit. The trees referred to are grown from seed of some of the best Perkins' seedlings, of which much has been written the last two or three years, and reference thereto will be found in many places in our reports during that period.

VALUABLE APPLE SEEDLINGS FOR EXPERIMENT.—Mr. Wyman Elliot who has been growing seedlings in considerable quantity from choice selected seed for the past two or three years, has on hand at this time a special lot of Wealthy seedlings, probably crossed with Ben Davis, from which much is hoped in the way of later keeping fruit than the Wealthy. These can be supplied in dozen lots to a few of our members who are interested to participate in this experiment, at the nominal price of $1.00 per dozen, the trees being two years old and from 1½ to 4 feet high. We are much interested in having as many participate in this experiment as are willing to do so, and believe that something good will come of these seedlings. Address Mr. Elliot at Excelsior. Minn., where these seedlings are growing.

NEW LEGISLATION FOR THE SOCIETY.—The society asked of our state legislature, which adjourned on April 18th, an increase of from 4,000 to 5,000 volumes of our report printed annually, and an annual appropriation of $3,000 to pay for their printing. The legislature granted this request. The society also asked for an increase from $2,000 to $3,000 for its annual appropriation to meet current expenses. The legislature granted an increase of $500, making the annual appropriation for the society $2,500. This amount is thought to be entirely sufficient to meet the needs of the society. The additional $500 asked for was intended to apply to the special work of the State Forestry Association, and we regret that on this account the full appropriation was not made. Both the appropriations were enacted so that they will continue from year to year without further legislation, which is as it should be. It ought not to be necessary for this society to make application every two years for these funds.

The horticultural society is under obligation to a host of its members and other friends, in and out of the legislature, who assisted in securing these material increases when the requests of so many other interests for similar increases were refused on account of the lack of funds to anywhere near meet the aggregate demands. Special mention should be made of the material assistance rendered the society by Hon. W. W. Bardwell, a member from Minneapolis, a native of Excelsior—whose acquaintance with the society and many of its members made him especially willing to serve us in this way. His watchful care of our interests is highly appreciated. As this legislation was all enacted the last day or two of the session, while there was no opposition to it in the legislature there was danger through inadvertance or oversight it might turn out unfortunately, and too late to be corrected. As far as we know, there was no opposition to the society developed in either house.

With this material increase in our funds and in the number of our reports, the society should enter upon a new era in its history, and to this end the united effort of its membership is invited.

EXPERIMENTS WITH PYRUS BACCATA STOCKS.—For the purpose of conducting an extensive and, it is hoped, conclusive experiment as to the value of orchard trees in this climate budded upon Pyrus baccata stocks at the crown, a dozen trees, including two Charlamoff, two Wealthy, two Duchess, three Hibernal and three Patten's Greening, have been sent by Prof S. B. Green to each of the eleven trial stations of the society, and also to Rev. O. A. Th. Solem, of Halstad, and Rev. J. B. Katzner, of Collegeville, as representing sections not well covered by the society trial stations. These trees are two years old. They are accompanied by instructions as to planting, care, etc., of which the following is a copy:

CONDITIONS to be observed in planting and caring for Pyrus baccata budded trees, twelve in number, sent to each trial station of the Minnesota State Horticultural Society, spring of 1905.

1. Plant not less than sixteen feet apart and deep enough so that when the ground has settled they will stand one or two inches deeper than they stood in the nursery.

2. Cut back so they will branch to form a head not higher than two feet from the ground and do no severe pruning thereafter.

3. Give the ground good cultivation throughout the entire season and do not mulch at all.

4. Number and keep a record of each tree, showing year of first blossoming, of first fruitage, annual growth, and amount of annual fruitage, injury from blight, disease or insects or other cause; and with the annual report of your station make a special report of these twelve trees showing all the above facts as to each tree, reporting also as to weather conditions for the year.

5. In first annual report after planting state any important facts pertaining to location where planted, as character of soil, slope of ground, protection from winds, elevation, etc.

6. Do not spray until instructions are sent out thereto, as the purpose is to make this experiment in as many essential particulars as possible a uniform one.

N. B. It is hoped by this experiment to secure very definite results as to the value of this process of budding standard apple trees on Pyrus baccata seedlings at the crown to produce orchard trees for this region. The finality of the experiment will depend largely upon the fidelity with which these instructions are carried out.

THE HOME OF THE BLOODROOT—A BIT OF MINNESOTA WILDNESS.

THE MINNESOTA
HORTICULTURIST.

VOL. 33. JUNE, 1905. No. 6.

CHOP TALK, NO. 3.

WYMAN ELLIOT, MINNEAPOLIS.

1. *Soils.* From past experience there is no doubt that clay soils and seed chosen from the hardiest northern grown, long keeping varieties will produce the most valuable seedlings. Clay soils, of lime formation, are always considered far preferable to those of a porous nature. The young seedlings grown on the lighter soils are apt to bark-burst on the south side on the approach of freezing weather, more especially those varieties that come from southern grown seed and do not mature their terminal buds early in the season.

2. *In digging* some apple and plum seedlings that had been transplanted from boxes when they were two or three inches high, I discovered that the roots were more spreading and did not have as long a tap root as those grown from seed planted in the open ground. Tree seedlings of nearly all varieties when three inches high can be transplanted as easily as cabbage with no greater loss.

3. *Currant Cuttings.* A discovery in planting currant or other hard wood cuttings was made last spring. The ground used was ploughed the previous fall. A line was stretched across the field six inches to one side of the exact place of inserting the cuttings; then with a six-pronged, round-tined hoe the soil was dug up to the depth of eight inches, being finely pulverized and care being taken not to step on the loose soil. Then the line was moved six inches to where cuttings were to be placed, and the cuttings were easily and rapidly inserted. When this row was finished the ground was firmly trodden down on each side, and dirt was drawn in with the steel rake to fill up to top of any remaining cuttings out of the ground. Result, 95% of cuttings grew. A six-tined prong hoe and a sixteen-toothed steel rake are two of the most destructive implements to young weeds just appearing above the ground when used by a careful and judicious person.

4. *The winter of 1903-04* was one of the most severe for several years, doing a great amount of damage to the orchards over a large area of the northwest, and nearly all the semi-hardy varieties were more or less injured. Large bearing trees of the Ben Davis were, in nearly all locations in Minnesota, killed to the ground. Some of them have thrown up strong, vigorous sprouts, and if another hard winter does not come soon they may again become remunerative and productive trees. We have a long list of hardy varieties from which to choose that were not perceptibly affected last winter.

5. The Wealthy, Peter, Northwestern Greening and Patten's Greening, University, Peerless, Thompson Seedlings, Malinda, McMahon, Wolf River and Brett, all northern grown seedlings, and the Russian varieties, Duchess, Borovinca, Charlamof, Anisim, Antonovka and several others, have wintered well and produced a good crop of fruit. All varieties like Ben Davis, Haas, Perry Russett and others of the semi-hardy class should be cautiously used and recommended only for trial in limited quantity. Our experiment stations located in various parts of the state should be a great help in deciding what kinds can and what cannot be used successfully.

View in E. R Perkins' seedling orchard, Red Wing.

6. Experience has taught me that seedlings at one year old cannot be chosen with as much certainty of getting the best in habit of growth and leaf as at two or three years after planting. In

noting the shedding of the foliage of the different varieties of grafted and seedling trees the past season I find those trees that mature terminal buds early and prepare for winter are in a hardier class than trees which do not shed their leaves until the very last; some of the more tender varieties retain their leaves well up into early winter. From this circumstance I judge we should select seedling trees that have large, fine foliage, mature growth and shed their leaves early or medium early; are vigorous, free from spurs, with habits of upright growth. Of course there will be exceptions to these rules of selection, but I believe in a majority of cases more good varieties will be obtained in this way than from a haphazard method of planting.

7. I find there is a wide variation in the growth and appearance of seedlings from different varieties; some at one year have grown only four to six inches, while others are twenty to thirty inches in height. The four to six inch trees at the end of the second year will often have attained a greater height than the larger year olds, showing better form, foliage and indication of becoming better trees for propagation. Some of the most successful orchardists of Minnesota believe our best fruit trees will be grown from seedlings of our own production or be top-worked on those of the most vigorous growth. Minnesota horticulturists already have the reputation of having produced more seedling varieties adapted to their climate than all the other states and Canada. Let the good work go on, and may the younger members of our society recognize it is the only way by which we shall eventually have long lived, hardy, productive orchards of the best quality of long keeping varieties. There has been more apple seed planted in the last three years with the idea of growing trees that would bear the premium Minnesota apple than were planted in any ten years before. The success in raising seedlings by the late H. M. Lyman, T. E. Perkins and several others, has given a great impetus to the production of seedling orchards all over our state.

8. I have often heard grain farmers say it was much cheaper to grow three bushels of wheat with which to purchase a bushel of apples than to plant trees and grow the fruit themselves; nevertheless, there is good profit in the growing of fruits when the management is conducted intelligently with up-to-date appliances. Every fruit grower should be an experimenter "from start to finish" if he would produce the best results. "Prove all things, hold fast that which is good."

Mr. D. S. Hall: Were the currant cuttings made in the fall or in the spring?

Mr. Elliot: They were prepared in October and placed in the root house in just ordinary soil in an upright position. They were somewhat calloused in the spring.

Mr. C. S. Harrison: Do you ever plant them in the fall?

Mr. Elliot: I have experimented a good deal in planting in the fall. On sandy soil I used to plant a good many in the fall, but when I came to put them on clay soil they were apt to heave out by the frost unless I took special pains to cover them very deep. For that reason I prefer planting in the spring.

Mr. S. D. Richardson: I have had very good success in planting them in the fall and covering them. Our soil is very heavy, but not heavy clay. I planted them early enough so they would leaf out once in a while and callous and make some roots. I have had good success in the fall planting.

Mr. L. R. Moyer: Where can you get the six tined hook you spoke of?

Mr. Elliot: At almost any hardware store or implement house. It is the most useful tool a man can have on the farm. I have seen them with eight tines. The first experience I had with that kind of a hook was with the old Hexamer hoe some twenty-five years ago. I have one of them now. Those were made with a cast iron head wedged in with an iron wedge. Hexamer was one of the most noted gardeners in New York, and I believe he was the inventor of that kind of a hoe.

GARDEN EXPERIMENTS.

T. T. BACHELLER, MINNEAPOLIS.

In attempting a paper on garden experiments, as in performing the work indicated, I am reminded of a statement made by our own practical and energetic co-worker, Prof. Green, in an article once furnished us for publication, which was as follows:

"The many varying conditions of soil, climate and markets make it necessary that every progressive farmer should carry on many experiments, so that, in effect, every intelligent farmer is the director of an experiment station."

Experience and common sense both teach us that many of the most common facts we must reckon with in every day life are as yet imperfectly understood by any of us. We are extremely glad that we can count upon the certainty of action of those laws which are fixed so that we can know that "like produces like" and that similar causes produce similar effects, as a rule. But we also know that there is another fact in nature, concerning which the writer acknowledges his utter inability to instruct others, by virtue of which wide variations in type are possible in a few generations of reproduction. We unconsciously perform experiments if we cultivate the soil and need to have our eyes wide open to reap the benefits of our work. Sometimes our individual experience will indicate a certain fact which the experience of another may disprove. Right here we will refer to a statement made to the writer in a letter received from Prof. L. G. Carpenter, of the Colorado Experiment Station, who said:

"Farmers are conservative, and they are not prepared to distinguish between those results which are probably true and those which are established beyond question. Unfortunately the latter class of results are few."

It will suit our purpose to place in one class all who cultivate the soil, whether farmers, gardeners, horticulturists or flor-

T. T. Bacheller.

It will suit our purpose to place in one class all who cultivate the soil, whether farmers, gardeners, pomologists or florists, and really it seems to me that there is more careful, intelligent, thoughtful work entering into the experiments made by those who cultivate little plots for any purpose than by those who handle 160 acres or upwards. The very eloquent gentleman who preceded me stated in his address before this body last year, that:

"The possibilities of an acre of ground are simply astounding. Who has ever tried what he could do with an acre of rich land? Work it and miracles will spring out of it."

You will see that I am placing great importance upon my subject, hoping that its significance may conceal the weakness of the few statements following. As a kind of apology for the very common matters I shall refer to from my experience I wish to express the belief that in the life and work of the tiller of the soil nothing worth doing or worth knowing can be called unimportant and no result obtained should be deemed insignificant. A few words then with regard to my own experiments.

Last season we tested twenty-one varieties of tomatoes, setting but few plants of most of the varieties, and pinning our faith and hope as well as giving our labor to those sorts which we believed could be relied upon. Some 2,000 plants in all were set, the earliest having been started in window boxes and all having had their due period in the hotbed or cold-frame. This assortment included two extra early varieties, supplied by leading eastern houses, each claiming the largest smooth early tomato known. They were Chalk's Early Jewel, sent out by W. Atlee-Burpee, of Philadelphia, and Spark's Earliana from Johnson & Stokes, of the same city. The eastern growers differ as to the relative merits of these two varieties. Our own experience is very strongly in favor of the "Jewel." It seems to us to be a wonderful acquisition, exquisite in flavor, very desirable in size, of good keeping and shipping qualities and ripening very early. Many of our customers remarked upon the flavor of this fruit and had a great deal to say about it. This is one case in which our opinion based upon one season might be modified after further experiment. We found the finest of all large, late fruits, both in solidity of meat and in flavor, to be the "Ponderosa," and these two varieties, for early and late, we place at the head of the twenty-one varieties tried.

We experimented last season also with three varieties of extra early corn, Burpee's Golden Bantam, Northrup, King & Co.'s Peep O' Day, and the Black Mexican, origin unknown. All three varieties were planted at the same time. The Peep O' Day gave the first ears, but produced a great many imperfect ones and put out too many branches for our satisfaction. The Golden Bantam came a few days later and was in every way very desirable indeed. All three were extremely sweet, and it might not be wise to give too strong an opinion as to our preference for either. But thus far, for a considerable crop of early market corn, we are in favor of the "Golden Bantam."

We have experimented considerably with wax beans, and for the third time the past season tested Burpee's Brittle Wax variety. The mature bean is of good size, and pure white with a black eye. The pods are very round, extremely fleshy and crisp, and the plants very productive. We picked four bushels of pods at the first picking from a row about ninety yards in length. The most important thing we learned about these beans may not be new to our readers. We had several plantings of them, and some of the lots were left to ripen without picking any while green. These were soon past the blossoming period and, though they matured slowly in the cold weather, were not long in passing the tender stage. But the earliest grown continued to throw out more blossoms after repeated pickings, and when the frost came there were still tender pods on them ready for use. This experience was entirely new to us.

In trying for very early potatoes for the table we found that medium sized potatoes planted whole and put six or eight inches deep in the ground, the opening being made with a spade, matured earlier that the same variety cut into pieces and planted in ordinary hills. This is not the first time that this plan has given the same results. Our earliest potatoes planted in this way were in rows parallel to some plum trees at one edge of our garden. We noticed in June that many very large frogs were frequenting this part of the garden and concluded to have a mess of frog's legs for a breakfast delicacy. The first monster captured showed such a full stomach that we concluded to hold a post mortem, when to our surprise we found more than twenty large potato beetles safely stowed away. We immediately reported the incident to the gathered household and warned them that no more frogs were to be killed in the vicinity of our potatoes. Later observations convinced us that these nimble hunters did us a vast amount of good in the next thirty days.

In experimenting to protect our tomatoes from cut worms we made cones of tarred paper and put about the stems of some of them after they were set out, the paper reaching two inches above the ground and perhaps four inches in depth below the surface. We felt a great deal of satisfaction over this work when completed but regretted the experiment later. We found this plan did not give absolute protection, for the cut worms sometimes got inside the cone, though we know not how. But as the plants grew larger, they became considerably damaged at the lower end of the cone, probably through the action of the wind, causing the stalks to rub against the heavy paper. The plants would appear sickly and some of them actually died, but we saved many of them by unwinding the cones and putting fresh dirt in their places.

In general, we have learned two or three lessons of broader application. We remember an old lady at a poultry show asking how long it took to hatch chickens in an incubator, supposing evidently that the modern machine must beat the old hen as to time. She seemed disappointed when informed to the contrary. But we have found that the same varieties of garden crops if sown in rich land will not only grow larger but reach maturity quicker than if sown in poor land. We have also found the great wisdom of so arranging our different varieties of vegetables that the rows are equidistant for a considerable length so that cultivation either with the horse or hand machine can be the more easily done. A great deal of time is saved by arranging those varieties which are planted in a similar manner so as to come together in the plat and, if possible, have all the crops that can be cultivate both ways in one section. This requires design from the start.

Finally, we have received some very strong suggestions in our experience as to the importance of making the house garden as symmetrical and attractive in appearance as possible. The vegetables and plants of different habits can be so arranged as to harmonize and yet afford pleasing contrasts. And we have noticed that wherever any very pleasing effect was noted by us, the passers-by also semed to be attracted by the scene. A very handsome row of Thomas Laxton peas ran from the house to the road and, supported by wire netting, not only give us great satisfaction with its load of beautiful pods but excited the admiration of many passers-by. In fact, we know that a number of our finest growing crops were the subject of frequent inquiry by neighboring farmers. It is easy for us to conclude that one well kept, productive and attractive garden located where it is easily seen from the public road will do much to stimulate scores of people to special effort in this direction.

These are but rambling remarks, and yet the experience of the past is of great value to us as we are making plans for the year to come. Our garden work of the past year was not any of it performed with the intention of saying anything in public about either efforts or results. But now that our attention has been drawn to the matter, we shall endeavor to keep a closer record of garden experiments in years to come.

Mr. D. T. Wheaton: I would like to ask whether anybody has used nitrate in connection with the development of early plants. I know it is used in the east to a considerable extent. I was wondering whether any experiments had been made in this state in that connection.

Mr. T. T. Bacheller: I think it has been tried in this state. The State Experiment Station sent out a bulletin concerning the results obtained by the use of nitrate, showing that it had a very favorable effect upon plants, especially in potatoes, as it was shown that fifty per cent. more potatoes were grown by the use of nitrate than were grown without. I tried the use of nitrate to a certain extent, and in every case the benefit was very great.

Mr. C. S. Harrison (Neb.): I find that the greatest difference comes from the seed. We are getting seed from the valley of the Red River of the North. We find that by planting that seed it increases our crop by half or more. We got seed from Wisconsin and raised six hundred bushels to the acre, while the potatoes from home grown seed did not amount to anything. One year we planted potatoes from seed obtained in Scotland, and the crop yielded a third more than from any other seed.

Mr. C. E. Oberg: I would like to ask the gentleman who read the paper what makes him think that he will get better results with his potatoes when planting medium sized seed than he would from planting larger seed.

Mr. Bacheller: I don't know whether my ideas are correct, but my first idea was that planting the large potato we would have more eyes than from a small potato, but this may not be true. It may be the eyes are there all the same; I may be wrong in that. My impression is that a medium sized potato is better, and I could plant a greater acreage with medium sized potatoes. Cutting one or two eyes to the piece we get a good sized piece of seed, while a small potato we could not cut to advantage. I do not know that I can give any other reason than that.

PRUNING.

(A Discussion.)

Mr. O. F. Brand: Two years ago when this subject was discussed I stood alone in my position with reference to the time of pruning, and two years more of observation have only confirmed me in my belief that I was correct. The idea of pruning in March came from necessity and convenience, in the same way that a whole lot of our habits originate. It used to be convenient for men to prune their trees in the latter part of March, because there was nothing else to do at that time of the year, but at other times of the year their work was driving them and they had not the time. One man goes along and sees another man pruning his trees, and he does not ask the reason why he does that work at that particular time, but he goes home and prunes his own simply because he saw a man in whose judgment he perhaps has the fullest confidence pruning his trees; and in that way it became the custom to do the pruning at that time of the year. My reasons for September or October pruning are these: The tree has ripened itself then. It has stored away within itself the food—especially in October, and generally in September—the food that is necessary to carry it through the winter. Everything lives on food, plants as well as animals, and the tree has to store up food in the summer time for use in the winter and to start a new growth in the spring. Now, the new growth begins a great deal earlier than you have any idea it does. Chemical analysis has proven that there is a great deal of aqueous matter in the tree in January, and there is a great deal more of it the first of March. There will be a great deal more of aqueous matter, of water sap, in the tree in March than in January, and in the fore part of March the work of preparing for summer growth has already commenced in the tree.

Now, I will go back and give an illustration of how nature works. A few years ago we had a very wet April and May. In one of our parks in Faribault, which has an alluvial soil underlaid with sand and gravel, there were planted a good many soft maple trees, and, as a result of that large amount of moisture, they started an unusually vigorous growth. Then later there came on a severe drouth, and a large number of those trees died, and a large number of them died in the tops. From my observation I argued like this: The excessive moisture in April and May forced them evidently, and was preparing them for a very large growth, when the drouth coming on shut off the food supply, and they were not able to perfect the work they had set out to do, and so they died. For the same reason: Up on a hill from which earth had been sold to the city for grading purposes they had cut away a corner and left a large soft maple tree standing. They had taken away more than three-fourths of the earth from under it, and still that tree lived. They had taken away so much earth that it was leaning over to some extent, but it lived and was not injured by lack of moisture. There is a lesson to be learned in connection with these facts which I have stated. What caused those other trees to die? Now, as I said before, a tree starts out early in March to prepare for the season's growth, and if you go to work and cut off a lot of the limbs it has not the use of that food that has been stored up, and that work that has already begun there, a good deal of that work, will go into water sprouts. That is the result you get by cutting off the limbs at that season. But if you take off those limbs in the fall, when nature rests, then in the spring she knows what there is to do and makes provision accordingly. These are some of the reasons, based on my judgment and observation, for September and October pruning.

Capt. A. H. Reed: I believe Mr. Brand has got the right theory in regard to the trimming of trees. Two years ago in a paper which I read before the society I stated that the time for trimming trees should commence in September or October, when the sap commenced falling. I was sat down upon by most of the members then present who expressed an opinion about the matter, but the fact remains, and by experiment you will find it to be true, that the fall of the year is the season when trees should be trimmed in order to gain the best results. I understand they follow that practice in the great apple state of Michigan, trimming their trees in the fall. My experience and observation goes to show that when you go to work and cut off limbs from trees in the spring of the year, when the sap is rising, that the wound turns black; but, on the other hand, when you cut them off in September or October the cut becomes hard and heals over nicely and no bad results whatever follow.

I commenced experimenting in January last. Each month I trimmed a certain number of trees. I followed up that practice, but I have not examined the result closely enough to tell just what the effect of each month's trimming has shown, but I am satisfied in my own mind that the limbs of apple trees of any size ought to be trimmed in the month of September or October. Perhaps it will aid the bearing of the tree to cut them out in March or April, but if I were to trim them then I would leave them with enough wood a little above the connecting point, so that they could afterward be cut down to the trunk, if necessary, and get good, clean wood where it had not rotted.

There is a neighbor of mine who has practiced girdling of limbs for some time. He tells me that this last spring he girdled some limbs, and that those limbs which he girdled bore apples, but no other part of the tree had any fruit. He cut a circle about one-sixteenth of an inch wide clear around the limb and took the bark out without any injury to the limb, and those limbs that were so girdled bore profusely, while no other part of the tree bore fruit. I saw neighbors of his who had seen those trees, and they said it was a fact, the limbs that had been girdled had an abundant crop of apples, while the part of the tree that had not been girdled did not bear any fruit.

Mr. A. Brackett: Upon this pruning question there is a great difference of opinion. If you girdle a tree as this gentleman speaks of, if you girdle that tree in June the wound will heal over and the tree will live, but if you girdle it in September it will kill the limb.. I think the wound of a tree trimmed in the spring will have a better chance to heal over than if it were trimmed in the summer. When I lived in Iowa, when a mere boy, Mr. Smith, of Des Moines, who had grown gray in the orchard business, told me one day in answer to a question I put to him as to the best time to trim trees, "The best time to prune trees is when your knife is sharp." I have followed that rule ever since, regardless of the time of the year, and I have always had good success; I have never experienced any bad results from that method.

Mr. Van Ness: I have little experience in trimming trees, but I know something about tapping trees in the spring. My father tapped his maple trees in the spring and made them produce as long as possible, but a few years ago we found the trees were dying in the top. I asked him why those trees were dying. He said it was because we were taking the sap out of the tree. He said if we cut a tree in the spring it would bleed, which would weaken it, but if cut in the fall it would lose no sap, and consequently there would be no harm done. So judging from my observation and what experience I have had I am convinced that the proper time to trim trees is in the fall. When you tap trees in the spring and make just a slight cut in the bark you will notice how profusely it bleeds, and that sap that escapes is necessary to support the life of the tree, and the more you take away the more the vitality of the tree is impaired; the tree cannot do the work that it ought to do. I think the spring is the wrong time to prune. If it is a young tree from which you cut the limbs it will not bleed so much. At the experiment station a few years ago I saw them pruning in June. I said to them, "Is this the proper time of the year to prune trees?" They said, "There is no particular time; any time when your knife is sharp." I said, "That is a matter that is firmly impressed upon my mind, never to prune a tree when it will bleed much, but let it go and do the work at a certain season of the year when it will not bleed."

Mr. Emil Sahler: Now, in regard to that point about having the knife sharp. I find that my knife is sharp the year around. I have always been advocating the trimming or pruning of trees at any time in the winter, but since I became acquainted with Uncle Kenney I have changed my method. I did my pruning this year at the same time that he does it, that is, the latter part of May and the first part of June. He says if we trim our trees in the winter season the frost is in the trunk, and when the sap rises it will run out of the wound, which injures the tree. I had a tree trimmer and always trimmed my trees in the winter time. On some trees that I trimmed I noticed that the sap ran down a foot or a foot and a half until it dried up, and two months later I discovered that there was a large black spot extending down as far as the sap had run, and to my utter surprise I saw that those trees which had large limbs cut off broke off below and died as the result of winter pruning. Then I followed Mr. Kenney's idea and found after pruning that the sap did not run out, and after cutting the limbs and waxing the wound over it gradually healed over, and everything was O. K.

Mr. Yahnke: This discussion reminds me of my neighbor who had never been able to grow any cabbage. Another neighbor, a Swede, said to him, "That is easy enough. Just get up three Fridays before sunrise in succession, and you will have cabbage." And so it is with this matter of pruning. It does not depend upon the season in which the pruning is done at all, but it all lies in the man who does it and whether he knows how to prune. I agree with this gentleman when he advises that we should prune when the knife is sharp. Anything that you can take off from a tree with a jackknife will not injure the tree in the least at any time of the year.

Mr. Philips: That's right. You do get a thing right once in a while. (Laughter.)

Mr. Elliot: Would you advise large pruning at this season of the year?

Mr. Yahnke: No, I would not cut a large limb at any time; I would cut before it became large.

Mr. Elliot: Many of our people have the idea that they must do some pruning. They know nothing about it, but they have the idea that they must cut something out.

Mr. Yahnke: When you have got a little boy—and there are lots of them in this country—you can train him when he is young and make something of him, but when he gets to be as old as I am you can't do anything with him. You can prune an old tree, of course, but it will result in the same way that the doctor said bleeding would affect his patient. In olden times they used to bleed a great deal for almost everything. A doctor had a patient who was very sick, and he was in a quandary to know what to do. He said, "I don't know whether I ought to bleed him or not. If I don't bleed him he will die, and if I do bleed him he will die sure." (Laughter.) So it is with an old apple tree, if you don't trim it it will die, and if you trim it it will die sure. (Applause.)

Mr. Ferris (Ia.): I do not believe it is a good thing for the idea to go out from this society that excessive pruning should be practiced in September and October. My neighbors come to me and ask me when they shall prune their trees, and I tell them when pruning is necessary and at the proper time. You should never cut off a limb larger than a half inch, and if it is an inch you had better paint the wound to prevent the bark from loosening by the action of the frost during the winter. I may be wrong as to the time, gentlemen, but I would not advocate September and October pruning. It may be that we are wrong in Iowa, but the concensus of opinion there is that May and June are the proper months in which to prune, and if we are wrong about this matter we want to know it.

Mr. John Nordine: The Jewell Nursery Co. has some six thousand trees in its orchard, and we have experimented as to the best time to prune, pruning in nearly all seasons, and we have found that the most favorable time to prune is in the month of June, because when pruned at that time they heal over and do not bleed.

Prof. N. E. Hansen (S. D.): As to the advice given to trim when your knife is sharp, that is a pretty good piece of advice if you lose your knife. (Laughter.) The result of pruning is this: In the spring the sap goes up in the sap wood, is worked over in the leaves—boiled down, as it were. The leaves are the stomach and, in a sense, the lungs of the tree. After the sap is digested it goes into the cambium layer. The first half of June is the time when that process is beginning, and the healing process only takes place in this cambium layer. If you have any trimming to do, do it in June, that is the best time; that is the time when the healing process begins; it begins in June and continues until the latter part of August or September. If you have any trimming to do in October you can do it, because I believe it is better then than early in the spring, it has time to season over during the winter. Here is the main thing to be noted. The old theory of surgery was to cut off the limb so as to kill the germ after it gets into the wound, but in the modern method of antiseptic surgery the germs are kept out of the wound. If you keep the germs out you can make a success of your trimming. Keep the germs out until the cambium is healed over. The chances are you forget to paint the wood until the germ gets in, and if the germs get in your tree is doomed to an early death. You must keep the germs out if you wish to make a success of your pruning.

Mr. C. C. Hunter: What is the best thing with which to cover the wound?

Prof. Hansen: Grafting wax is a good thing, but common red paint will also answer.

Capt. A. H. Reed: Do you believe, Prof. Hansen, that sap returns to the root, or does it expend itself in forming new wood in the fall?

Prof. Hansen: Yes, certainly it returns to the roots, otherwise they would not grow any bigger. That is where the difficulty lies in girdling. If you take out a ring of bark you prevent the downward flow of sap. You girdle your apple trees, and perhaps your apples will be bigger, but it will be at the expense of the roots, and it will kill the tree in time. So the result is that you are getting fruit at the expense or sacrifice of the vitality of the tree, you are eating your cake too soon.

The President: It seems to me Prof. Hansen has given us the scientific aspect of the subject in good shape, and I am at a loss to know how to get at this matter more definitely without taking a vote.

Mr. O. F. Brand: There is a ripening process going on in the trees the latter part of August, September and even October. These thoughts that I have expressed here were drawn out by Mr. Andrews' paper which dealt largely with the bearing orchard, the older orchard, that is what I had reference to, cutting out large limbs. Now, these men are begging the question who are going to prune when their knives are sharp.

Mr. Elliot: I move you, Mr. President, that we take a vote on this subject, and I suggest that we make four divisions as to months.

The Secretary: The whole discussion will go into the Horticulturist, and there is as much divergence of opinion as there are people in this audience, and it would be almost impossible to get a vote that would be a guide to the people who read our publications. If they read this discussion and then read the vote afterward I think they would be still more confused.

Mr. Yahnke: I think this is a very important matter and we must not say anything that would tend to mislead the people. Our magazine is looked upon as an authority. We do not want one man's idea to go out as the sentiment of this society, and I think it would be better if we did not vote at all. We have about all given our ideas on this subject of pruning, and these ideas will go out to the people through our magazine, and now let the people test this thing for themselves.

Mr. Probstfield: I do not believe in committing this organization to any particular method or manner of doing a thing, whether it be in the orchard, farm or garden. I was just telling Mr. Philips that I trim my trees at all times of the year except in the spring and winter. I do not recommend that to professional orchardists or even to farmers, but there have been a number of ideas and theories advanced here, and this discussion will all go in the record so that everybody may read it, and then let everybody pick out what suits his condition or fancy best. They will not follow it, anyway. (Laughter.)

"One of my neighbors found it very profitable to tie small paper sacks about the bunches of grapes when they began to form. This kept the insects from stinging the grapes and seemed to prevent them from rotting. It was almost marvelous to see what perfect bunches of grapes had grown inside the sacks and how long they clung to the vines in a perfect state. He gathered grapes after mine, of the same variety, were all gone. A little car along thesee lines will make a small vineyard very profitable."

PLUM POCKET.

S. D. RICHARDSON, WINNEBAGO CITY.

My first experience with plum pocket was between 1870 and 1880. I had a farm on the prairie that had a windbreak of seven acres, so my plums were well sheltered from the wind.

One spring we had a large amount of east wind and cool weather, and the plums in the groves along the creeks and lakes were destroyed by the pocket, while those in the grove were a fine crop. These were wild plums, but I have noticed the same results with our tame plums, viz., that a cold spring, with plenty of east wind, will bring plenty of pocket.

Some varieties are much more liable to pocket than others. A few years ago we had six degrees of frost when the Mankato and Cheney were in full bloom. The Mankato matured a splendid crop, but the pocket captured the Cheney almost entirely. This year the Cheney was free from pocket, while the De Soto where it was exposed to the east wind was badly affected.

The pocket does not seem to affect the value of the tree for future crops when the weather is favorable. I never bother to pick off the pockets; too much work, let them alone and they will fall off themselves. If I had a tree with pockets on in the front yard I would pick them off, as they are not at all handsome.

The President: There is a commendable feature about Mr. Richardson's papers, he always comes to the point, and he always reads so we can all hear.

Mr. O. M. Lord: I don't like to discuss this plum pocket business much. We have said so much about it in years gone by that I do not like to add anything further, but I will say what I heard Prof. Green say yesterday that perhaps we can control it. The difficulty seems to be entirely climatic. Cold will produce it; it will be developed by cold. Prof. Green says the New York people have been making application of a mixture that will prevent it. I had about a thousand trees in bearing this year, and I did not have a specimen, although I may have bushels of them next year. My opinion is that it is a mere matter of cold with either wet or frost. If the disease can be transmitted, you can transmit it in any way from diseased plums to those that are healthy. You cannot control it; it is a matter that in my opinion is entirely climatic.

Mr. Ferris (Ia.): I want to say a word on that subject along the line of my experience. I planted a great many plum trees and fruited them. I have one, the Yosemite plum, that was grafted on a sand cherry more than twenty years ago, and I want to say, not for the purpose of taking glory to myself, that I think I was the first one to graft the plum on the sand cherry, at least in Iowa. My trees every year are full of fruit. They are loaded with blossoms without a sign of disease; every year they are full, but in all this time I have never seen a plum on that tree. That is the first thing to come in the spring, the first thing to bloom. That confirms both Mr. Richardson's and Mr. Lord's opinions; I think they are both right.

THE WHITE PINE WEEVIL.

PROF. F. L. WASHBURN, STATE ENTOMOLOGIST.

My attention has been called to the deformities frequently met with in some of our white pines. Now, as one looks at one of these large trees and observes its misshapen appearance it is hard to realize that this condition is due to the life activities of a ver small insect, hardly more than one-quarter of an inch long. Just as many other phenomena have their origin in some obscure cause, so does this peculiar and, to the lumbermen, money-losing growth owe its origin to what appears to the ordinary observer to be an insignificant, almost microscopic beetle.

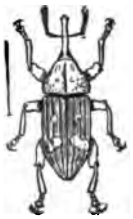
This beetle, whose scientific name is *Pissodes strobi,* is one of the weevils, or snout beetles, belonging to the family *Curculionidae,* a group containing the weevils, numbering about 10,000 species, and causing an estimated annual loss of $30,000,000 in the United States alone. Why this weevil should, with what seems to be malice aforethought, choose the growing tip of a young pine for the home of its young, thereby practically spoiling what would have produced several thousand feet of good lumber, when apparently any one of the laterals would do equally well, is hard to understand, but that such is the case can be easily proven by any observant person going through the pine woods of Minnesota, New England and elsewhere. It must be said, however, that the white pine is not the only tree affected, since it is known to lay its eggs in spruce, fir and hemlock, though it apparently does not deform these.

Briefly, the life history of this foe to the lumberman is as follows: The mature female deposits her eggs in the spring in the bark of the leading shoot of a small white pine, three to five feet high, laying one in a place at irregular intervals along the shoot. Fitch states that egg laying occurs in May in New York. The larvæ hatching from the eggs bore obliquely downward into the wood and pitch, making but a short burrow, causing an exudation of pitch and the dying of the shoot. Hence, a joint is made, and a tree thus affected will not send out a new leader for, possibly, several years. The laterals grow upward, each one striving for leadership, as it were, and no one of them equalling what the leading shoot would have been had it not been destroyed.

Not one but several eggs are laid in the bark, and at intervals, that is, not all the eggs at one time, some shoots showing as many as eight or more grubs of different stages in the summer months. Sometimes the beetle will lay its eggs in the crevices of bark of old trees, and under the bark of pine logs and stumps, where, as a rule, no serious injury is caused.

The grub becomes full grown at the end of the summer, hibernates as a grub and transforms to a pupa in the spring. The beetle, emerging shortly after, immediately mates and lays its eggs. Felt states that in New York state he found the beetles most abundant between the 13th and 26th of June, and again from the 9th of August to the end of that month, an intimation that they do not all hibernate as grubs.

Affected shoots will be nearly or quite dead in the fall, bark black and covered with white masses of pitch which has oozed out during the summer as the result of the work of the grubs. The grubs have a curious habit if one of them finds the pitch already occupied by one or more of its congeners of turning aside into the wood and boring therein, and this politeness on the part of the larva adds to and hastens the destructive results we have been discussing. In the course of their burrows in pith or wood, we find cells, at intervals, in which the grubs undergo their transformations. The round holes through which the beetles emerge from these cells, or without them the shrivelling and blackening of the bark and the white masses of pitch, are so characteristic that one can easily recognize an infested tree.


White Pine Weevil.

The beetle, which has such a significant bearing upon the lumber industry, is dull colored, a dark chestnut brown, with whitish and yellowish markings on the back.

As regards remedial measures, it is apparent at once that nothing is practical in a large forest; though when one reflects that if he would, in going through the forest, break off and destroy the growing tip of young pines three or four feet high which are unmistakably affected he would kill many grubs which would otherwise transform into beetles and destroy other trees, one is tempted to suggest that forest rangers be given that as a part of their work. When trees are few, as on private grounds, or comparatively few, as in a patch which is being reforested, it is fairly easy to prevent these deformities. Wilting terminal twigs should be examined and grubs cut out. Repulsive and at the same time poisonous washes could be applied to repel or kill the adult beetle, early in June and later. The grubs are also attacked in their burrows by other carnivorous insects, and some birds help us in the forest by digging out and eating the developing young, but when the beetles themselves are on the twigs, engaged in egg laying, their brown color harmonizes so closely with that of the bark that they probably escape the notice of most insect-eating birds.

Prof. Washburn: I would like to ask Gen. Andrews whether he has noticed that the shoots are killed off?

Gen. Andrews: I think I have.

Prof. Washburn: I just want to say a word about this model. (Exhibiting large model of white pine weevil.) We have been sending to Germany for our models, but we find in Washington there is a lady who makes as good models as are made in Germany. I sent her a pine weevil and she returned this model in two or three weeks. She has been doing some work for the government, and the government has appropriated $250,000 for work against the cotton boll weevil, that is causing a loss of $15,000,000 annually, and is distributed now over one-fifth of the cotton belt. When it gets over the entire cotton area it will destroy $250,000,000 worth of cotton or something like that. The senators and congressmen could not all quite agree upon passing this appropriation bill; it certainly looked like a big sum of money to fight bugs, so they did not like to vote for so large an appropriation. Then the bug men who were interested in having the appropriation pass got this lady to make a model of this weevil, and she made it larger than this pine weevil, and it was a most perfect representation. They took it into the senate chamber, and one senator who was opposing the bill, when he saw the model, said, "For heaven's sake, if it is like that I will vote for two million!" (Laughter.) They agreed to pass the bill, and the people got the appropriation.

KALE IS A PLANT belonging to the same family as the cabbage, turnip, rape, etc. Like them, it is adapted for feeding purposes and withstands a low degree of temperature. It is used for greens as well as for stock. Like rape it produces a large crop and is a heavy feeder. When grown in the garden it is started in seed beds or trays and transplanted the same as cabbage or cauliflower.

APPLE REPORT FROM POLK CO.—"I examined the wood of my apple trees some time ago; varieties with bright wood were Charlamoff, Hibernal, Anisim, Blushed Calville, Whitney, Virginia, Brier Sweet, Sweet Russet Florence, Lyman's Prolific and Longfield were nearly perfect; following varieties showed more or less discoloration: Malinda, Wolf River, Wealthy, Repka Malenka, Tetofsky, N. W. Greening. Patten's Greening was nearly perfect."

Peter O. Vangen, Climax, Minn.

MY EXPERIENCE IN SPRAYING THE ORCHARD.

H. H. S. ROWELL, EXCELSIOR.

My experience in spraying the orchard is not of great extent, either in point of time or in area of orchard considered, but the conditions and results noted may contribute something of practical bearing to the general fund of information. It has to do with an orchard of thirty-five apple trees, established twenty years ago, my experience covering the last seven years.

In 1897 I acquired this orchard, then thirteen years old, situated on very high ground, with south and east slope, about one mile southeast of Lake Minnetonka and probably 100 feet or more above the lake level. The orchard was in sod, had largely grown up to brush and had not been pruned for some years. With the exception of occasional mulching, it had evidently received little attention. I was told that the yield, in the best crop years, had been forty to fifty bushels.

Beginning in 1897, little was done the first season but to spray once with Bordeaux, after blossoming. In 1898, in January, the trees were vigorously pruned of the numerous dead limbs, which were burned, and spraying with Bordeaux was done before and after blooming. In 1899 the trees were pruned and scraped of loose bark; all the under-brush was cut and burned, and the trees were sprayed with Bordeaux. In 1900 the trees were sprayed with an "arsenoid" preparation, both before and after blooming. In 1901, during February, the bark was scraped, and the trees were sprayed with kerosene emulsion, and later in the season with Bordeaux. In October they were pruned. In 1902 the trees were sprayed with "Liquid Koal," a patent preparation from coal tar. In 1903 they were pruned in February and, in April, sprayed with lime, sulphur and salt mixture. In 1904 they were pruned in February, and sprayed in March with a solution of caustic soda, and later with Bordeaux.

The trees have been moderately mulched, owing to scarcity of material, but they have received some applications of hardwood ashes; also lime, and occasionally iron filings and a little stable manure.

The years of odd numbers have been the light crop years, and those of even date have been years of heavy crops. At the beginning there were fourteen Wealthy, nine Whitney crabs, nine Transcendant crabs, three Virginia crabs and three Hyslop crabs. After the third year the Transcendants and the Hyslops were practically destroyed by blight. For the purpose of this investigation, the results will be given for the Wealthys and the Whitneys, as these trees are all yet living and have changed but little in size and appearance. The same treatment has been given to 300 young trees which have meanwhile been planted, and some of which have come into bearing. The young trees have been cultivated, but the old ones have not.

Beginning in 1897, the crops of the Wealthy, in bushels, have been as follows: 14, 57, 3½, 70, 2½, 100, 7½, 135. The crops of Whitneys, in the same order, were: 15, 11, 8, 23, 21, 27, 23, 29. Combined, the two kinds aggregated, for the same seasons, as follows: 29, 68, 11½, 93, 23½, 127, 30½, 165.

Group of Wealthys at Mr. Rowell's place, averaging ten bushels each in 1904. Trees twenty years old.

It will be noted that, while the crops of the "light" years are as light as ever, the crops of the good years have shown a steady and vast increase. The Whitneys have doubled in yield, but show little difference between "light" and good years. The Wealthys bear so heavily in good years that they of necessity take a rest in the "off" years. The crop of the present season showed an average of almost ten bushels of Wealthys per tree. Not one wormy apple in the seven years has, to my knowledge, been found among these Wealthys. Another orchard, situated within ten rods from this, has about the same number of trees, about the same age, but has seldom been sprayed or pruned, though it has been mulched, and it has shown a decrease rather than an increase during the same period. Up to the time they blighted, the Transcendants and the Hyslops in my orchard showed the same increase noted for the Wealthys and the Whitneys. The Virginias also showed an increase until attacked last year and this year by a blight, which affected the fruit and foliage but did not appear to injure the trees, and it is evidently of only temporary injury. The Wealthys blighted rather badly in 1903 but have since recovered. Blighted limbs, so far as possible, are promptly removed and burned. The bearing quality of the trees has evidently been aided by the spraying as well as by other care. It is evident to the writer that apple trees are very quick to respond to good treatment and will well repay all careful attention to their needs.

Prof. Washburn: I was under the impression while listening to that paper that something he did in that orchard or to that orchard (and he did so many things so carefully) in the winter and spring had something to do with the good results he obtained. I have some doubt, however, as to the efficacy of some of the applications he made. I would like to ask him how strong an emulsion he used?

Mr. Rowell: I do not remember. I followed the standard formula. I could not say exactly whether they were by the formula recommended. Of course, in some cases I used a weaker solution and in some cases a stronger. I am not aware that there was any injury. I have been in doubt as to how much benefit I derived. The results showed that they were benefited by something, but they did not receive any great amount of fertilizing material or anything of that kind. I have an idea that to spraying perhaps fifty per cent was due, and fifty per cent to other causes.

Mr. Gust Johnson: I would like to ask him when he does his pruning, in the spring or fall?

Mr. Rowell: I prune in the winter because I have more time, and I have sometimes pruned so freely that when I was through there were a good many dead limbs lying around on the ground. I painted over the stubs, and I never noticed any injury. The big crops come along just the same. The first pruning was done when I took the orchard. I do not believe in meddling with the natural growth of the tree unless it is necessary.

Mr. Brackett: I believe the best time to prune is when your knife is sharp.

A Thriving Peerless Orchard.—R. W. Chapman, of Plainview, writes in regard to the Peerless orchard of Mr. C. W. Blair, of St. Charles, that it contained 1,000 trees, the loss from the original setting during eight years not to exceed twenty-five trees. The trees bore last year in his judgement a half a barrel of fruit apiece. The orchard is "located on northern slope, clay subsoil, surrounded with low growth of timber," an ideal location for an orchard."

CARE OF YOUNG APPLE TREES AND EVERGREENS.

O. A. TH. SOLEM, HALSTAD.

(Read at Annual Meeting of Red River Valley Hort Society.)

When I came here about twenty-three years ago, I was told that apples could not be raised in the valley. Our winters were too cold and severe and our summers too short to ripen the fruit if they could survive over winter. Probably crabs could be raised, but even that was doubtful. As I had at that time joined the horticultural society of our state and was reading encouraging reports from different parts of the central and northern portion of our state, it entered my mind that the time might come that even here in the valley apples could be grown.

I bought a few Transcendant crabs and two Whitney's No. 20, fifteen years ago. In 1892 I set out some Tonka crabs.

In 1897 I started my first orchard of 240 apple and crab trees, 200 apple trees and forty crab trees. As you see, my experience in taking care of trees is very limited, but what little I may know is at your service. The main thing in taking care of trees is to start right. If you do not start right there will not be much to take care of.

Start right by selecting the proper place for your trees. This must be determined to a great degree by the character of the estate. It is desirable that the front be kept open and free, for ornamental decoration. Fruits are consigned to the rear, generally at one side of the barn and out-buildings. For convenience in working and for mutual protection, it is desirable to concentrate the various fruits in one locality so far as is practicable.

Start a good windbreak on the south, west and north of your orchard.

Laying out the orchard. Every one will admit that an orchard handsomely laid out, in perfectly straight rows, is in every respect better than where the trees are in crooked lines. An owner can feel no pride in giving proper cultivation to an awkwardly planted orchard; and trees standing out of line will be a constant annoyance to every ploughman who is in the practice of laying perfectly even furrows.

Proper distance. Sixteen by sixteen feet is a good distance when trees are small, but after a few years when your trees have branched out and come into bearing you will find it next to impossible to give thorough cultivation. Sixteen by twenty is not too far; rows twenty feet apart and trees sixteen feet apart in the row.

Dig big holes. Two feet deep and four feet in diameter is about right. Fill in about eight or ten inches of cultivated soil.

What variety to plant. If you have no experience and do not know what variety is best for your locality, write your nearest nurseryman and leave the selection with him. Do not set out many varieties. Stick to some standard variety that has been raised successfully in your locality.

Avoid blighting varieties, such as Transcendant crab and Whitney's. Try to get low branches, small trees, from three to five feet. I would prefer a three foot tree. Set the tree from twelve to eighteen inches deep. Fifteen inches is about right in our soil. Fill in cultivated soil and press firmly about the roots. Take care and not break the small rootlets. Lean your tree a little towards the two o'clock sun, or a little to the southwest, in order to avoid sun scald. Be careful and not make any mound about your trees. Now you are ready with your first step; you have started right.

But now comes the next step. *How to care* for them in order to make them grow. When trees are small it is advisable to grow small fruits or vegetables of some kind between your trees. Potatoes or mangels answer the purpose. When you cultivate your root crops you cultivate your apple trees. Cultivate often and thoroughly. Start your cultivator early and cultivate at least once a week. Avoid ridging up near your trees. Pull the weeds near the trees or use a hoe as often as necessary.

Kill all the pocket gophers on your place, or they will pay too much attention to the roots of your trees. When winter sets in throw a mound of earth about your trees in order to protect them from field mice. Take a bar of cheap soap and rub the branches of your trees in order to protect them from jack rabbits, etc.

Evergreens. If it is necessary to start right in order to grow apple trees successfully, it is more so in growing ever-evergreens. For what purpose do you want them? You want a few specimens for the love of them. Different varieties by themselves are a contrast to several varieties of deciduous trees. Others want them for hedge purposes or for windbreaks or for growing along a public highway, etc. Select the variety that is best suited for your winter. Always get transplanted trees grown near or in your locality and in the same kind of soil you have. If possible avoid shipment by rail but drive to the nursery in a wagon with a double box on. Look at the different varieties as they grow in the nursery. Look at the same species half or full grown. Ask questions and find out all you can about the secrets of growing evergreens (if there are any), and you will not regret the extra trip. Select your trees or the kind the nurseryman recommends if you leave it with him. Get your trees with soil adhering to the roots, and your trees will even grow in your wagon box on the road home.

Set your trees in large holes. Use only cultivated soil. Set the trees from three to six inches, according to size, deeper than they grew in the nursery. If you cannot cultivate your evergreens, then mulch. Rotten straw or chips answers the purpose. But remember cultivation is the best mulch and cultivate shallow but often. Never allow your soil to crack. If it is raining cultivate as soon as you can work the soil without clogging. If it is dry cultivate early and late. See you have a good dust blanket for your evergreens, because then is the time they must have it or die. Evergreens treated this way will grow and grow fast, and you will have something that will keep the storms from your dwellings and barns and, besides, beautify your home both summer and winter.

THE HYDRANGEA.

Every person who owns a plot of ground should have at least one specimen of the hardy Hydrangea. As a late summer and autumn bloomer it is par excellence. It is as hardy as a Lilac but needs more attention. It is a gross feeder. When planted it should have the ground spaded very deep for quite a large space and a liberal quantity of good manure well worked into the soil. Every fall give it a heavy dressing of manure to be worked into the soil in the spring, and then if you have any left it will appreciate another liberal dressing. I hardly think you could give a Hydrangea too much water or fertilizer, but it will respond liberally to both. Every spring they should be pruned severely. Cut out all weak or slender growths and cut back all branches fully one-third or more and prune in such a way as to keep the bush symmetrical; then after the buds have started I look over the bushes and rub off all the weak buds. If the work is thoroughly done you will have large and perfect heads of flowers, otherwise the heads will be small and individual flowers imperfect. Do not crowd Hydrangeas. I like them planted in clumps of three or four, but do not plant them too closely. Do not make the mistake that I did by putting three in the space one should occupy. If your place is large you can plant in clumps, but if small one specimen is enough.

WHAT MINNESOTA NEEDS IN FORESTRY.

GEN. C. C. ANDREWS, STATE FOREST-FIRE WARDEN.

I don't know what to say without saying what I have said before. I make the same speech about every time. It was Count Moltke who said it was better to start wrong than not to start at all. Gen. Lew Wallace started wrong on the first day of the battle of Shiloh, but he got around to the right road and did a splendid work on the second day of the battle. The state of Maine made a start in forestry in 1891. The state of New York had passed a law, in 1885, when Mr. Cleveland was governor, creating a forestry board—and, by the way, Samuel J. Tilden was one of the first members of the forestry board of New York—and the state of Maine in 1891 passed a law providing for the extinguishing of forest fires and providing that the selectmen should be fire wardens in their respective towns, and that they should turn out to fight fires, and that the town should pay the expenses for such services. They limited that expense so it did not amount to but little. Now, after some years' trial, the state of Maine in March, 1903, passed a law authorizing the town supervisors to take precautions to prevent fires, which the former law had not done, and appropriated $10,000 out of the state treasury to make the law effective. They also appropriated $2,500 for education in forestry in the state. In the month of April there was but 73-100 of an inch of rainfall, and from May 4th until June 9th not a drop of rain fell, and the consequence was that there was an unprecedented drouth. Forest fires prevailed in the state of Maine, as also in New York and Pennsylvania, and the town officers under this law fought the fires with persistence.

The forest commissioner of that state in his report says that the law passed in March appropriating $10,000 saved the state millions of dollars. Maine got onto the right track. The state of New York expended $150,000 fighting fires that spring of 1903, and Col. Fox, the state forest superintendent, stated that if the law had permitted the expenditure of money to prevent fires it would have saved a large part of his $150,000, but they had no means. The law did not provide for the prevention of fires.

Now our law fortunately does say that the town supervisors shall take precautions to prevent fires, and an amendment which was passed two years ago provides that they shall be paid for patrolling their districts in dry weather, and that they shall be paid for preventing and extinguishing prairie fires. The best feature of our Minnesota law is that money may be expended for preventing as well as fighting fires. The appropriation which the legislature made is only $5,000, to be expended each year out of the state treasury in a dry and dangerous year. I need not say to you that that amount would go but a very little way in such a drouth as they experienced in the state of Maine and in other eastern states. The current appropriation made by the state of Minnesota to carry out the fire warden law is $5,000, but out of this $5,000 must be paid also all the expenses of the central office, four thousand copies of the annual report, printing expenses, clerk hire, postage and traveling expenses—all come out of this $5,000. We should ask the next legislature to increase that amount, at least double it. I give you warning that if we should have as bad a drouth as they had in the state of Maine and in New York and Pennsylvania in 1903, the law would be unable to withstand it.

Then the state should make a little appropriation to develop this Pillsbury forest reserve. You will remember that Gov. Pillsbury gave the state a thousand acres of cut-over land in Cass county for forestry purposes, and the forestry board has begun the administration of that tract. We have a little annual appropriation of one thousand dollars to pay the expenses of that department, clerk hire, postage, etc., and out of that $1,000 we have started a nursery of about one acre where we are cultivating spruce seedlings. The nursery is in first class shape, and we have about a million young seedlings growing, and we want to plant those on the Pillsbury reserve to raise spruce for pulp. We want to run lines so we may know exactly where they are. Last April, by an act of congress, 20,000 acres of forest land was set aside, which the forestry board and the land commissioner selected in St. Louis county. It lies in two townships and borders upon and includes twenty-seven lakes. We ought to have a little money to carry out a working plan and to permit the forestry board to make a thorough investigation of the possibilities of this tract and to see that it is properly administered.

Then, as your president said in his address, there should be a little appropriation to sustain this forestry association. Twenty years ago the legislature very liberally appropriated $5,000 for the State Forestry Association. Mr. Hodges, a very active man in forestry interests, got this $5,000 appropriation because he had that push and energy that gave him a great reputation. For some years the legislature has not appropriated one cent for the forestry association. Then two years ago the legislature passed a bill authorizing the state forestry board to purchase a tract of land at a price not to exceed $2.50 per acre, not exceeding the eighth part of any one township, and one-quarter of the revenue to go to the town for the annual tax. But they made no appropriation to carry the law into effect. Now the question is whether we are to remain as a mere organization to meet every year to talk about forestry without doing anything. Six years ago the forestry commission of Wisconsin employed Dr. Roth to inaugurate a forest plan, and in the area of 18,000,000 acres which had been covered with pine he found 6,000,000 acres which he says is unfit for agricultural purposes or only doubtful, so that amount should be left to forest. There is as much probably in Minnesota. There are 3,000,000 acres in scattered localities that are non-agricultural lands and which the state ought to begin to reforest. Why? Because it takes on such soil eighty years for pine to grow to merchantable size, and our states must do as the European states do in this matter of reforestation. What are the results? The kingdom of Saxony, which is the most advinced country in Europe in forestry, has now 432,000 acres of state forest on mostly non-agricultural lands. The product of the annual growth per acre is 225 feet board measure, so from that forest of 432,000 acres they can cut annually 97,000,000 feet without impairing the forest. One of the greatest things in Europe is this science of forestry as developed by those states. On the same prin-

View in 20,000 acres forestry land granted the state by Congress, April 28, 1904.

ciple these three million acres of Minnesota land, when they become a normal forest, at the end of eighty years would yield annually 675,000,000 feet board measure, and at the present prices would yield a net revenue of $3,000,000. In German forests it is common for each one hundred acres to furnish employment to one man, steady employment, and on that basis the 3,000,000 acres of Minnesota land would give employment to 30,000 men the year round.

I wish you would think of these things, and think what a legacy this would be to the state if it could be accomplished.

THE HARDY ROOT PROBLEM.

A communication from Amasa Stewart, an old time member, now living at Lamarque, Texas.

"I see that your president and others are working on the same thing that I worked on for twenty-five years in Minnesota: that is, the hardy root problem. There is but one way that I have found to be sure to get an apple tree on hardy roots, and that is to get a hardy tree on its own roots. You cannot depend on seed from a crab apple or seed from any other apple producing a hardy root or stock, but if you have a hardy tree on its own roots the roots will be hardy.

"My practice was to take scions from a hardy tree, cleft graft them on a piece of young, thrifty root, plant in nursery row, covering the graft all but one or two buds at the top. In one year they will nearly all have taken root from the graft. They can then be taken up and separated from the old root. *Be sure to take off every particle of the tender root.*

"In cutting the graft so as to have a bud at the lower end of the graft it will strike root much more readily than without the bud on the point of the graft."

A Troublesome Apple Tree Pest.—"I am in receipt of the letter from J. N. Wishart, enclosing specimen of the branch of his apple trees. This specimen has been injured by what is known as the Buffalo tree hopper. You will find this described on page 171 of our report for 1890. There is no real satisfactory remedy for this pest, and it is doing a large amount of injury. Prof. Lugger's suggestion was that the trees be jarred onto an umbrella covered with petroleum.

"These insects were especially abundant a few years ago, and I think that during the last two years I have heard less reports of their injury than formerly. You know how we have waves, as it were, of insects, when for a series of years they will be very abundant and troublesome, and then for another series we will have little injury from them." (Prof.) Samuel B. Green.

APPLES AS A FOOD.

(A discussion following the reading of a paper on "Foods and Their Values," by Dr. Mary S. Whetstone, published in the May issue.)

Mr. A. J. Philips (Wis.): I want to ask the doctor a question, and that is this. What single fruit is the best, supposing we could get but one, for human beings to eat? I am pretty well satisfied it is the apple. I enjoyed this paper. I went down stairs and tried to get up everybody to hear this paper. I was out with her on institute work last winter, and I was always anxious to be present when she spoke, and wherever she went they listened to her talk with the greatest interest, and her paper to me has been very interesting this afternoon. This society has been rightly named as an auxiliary. We are trying to encourage the production of fruit, and now the doctor comes here and tells us we are on the right track. I wish she would come down to La Crosse and make the people believe that apples are as nutritious as potatoes. I went there with a load of apples and tried to sell them. They asked me how much I wanted for them, and I told them a dollar a bushel. I drove in on the north side, a woman hailed me and said, "Have you potatoes?" "No," I said, "I've got apples." "O, I want potatoes." By and by another woman came out and said, "Plaze, an' hev yez pertaties?" I said, "No, apples." She said, "Oi don't want ony." I drove some forty rods further and stopped at another house. I asked the lady if she wanted some apples. She said, "Let me see what you've got." I had four or five different kinds, and she tried one or two of each variety, and by that time her three children had come out to the wagon, and she gave each of them a couple of apples. A neighbor woman came out and asked if I had potatoes. The other woman said no, I had apples, and told her to hold her apron, and she gave her some. A third woman came out and wanted to see my apples. The first woman helped herself and gave the third some apples. Finally the first two women went away without buying any, and I had only one left. After looking the apples over and while eating some she said, "I don't want any today, but if you will come around some time next week I will take a peck." (Laughter.) I never went back. The truth is the people don't know the value of apples or fruit of any kind. We ought to encourage the growth of apples, I don't care if they are nothing but seedlings. People ought to feed vegetables and apples to their children. Look at that test they had down at Washington. The meat eaters never got there at all. I can always tell those children that eat meat and hardly ever get any fruit. They are not so healthy and not so enthusiastic as those that live on fruit and vegetables. If we ate less meat and more fruit we would raise more apples. (Applause.)

Prof. N. E. Hansen (S. D.): According to Scandinavian mythology it was the belief that if the people ate apples they would never become old, or if the old people would eat them they would become young again. I think we might safely adopt this rule today and as we get old eat apples, and even if we are getting old eat apples anyway.

Mr. O. F. Brand: I would like to say a word about eating apples. I believe in eating a great many apples, and I also believe in eating the best of apples. I not only believe in eating them raw, but in eating them cooked, and in this connection a question of health comes up in cooking apples. We do not want very sour apples, for it is a fact that the more sugar you combine with acid the more dangerous it becomes, and the less sugar you put in the healthier it is. The danger is not appreciated at once in eating this acid fruit combined with saccharin. It comes to us gradually, and we are overtaken with the trouble before we are aware of the cause. You can eat too much fruit or too much apple sauce if sour apples are made sweet with sugar. I should try to retain those varieties that do not require so much sugar.

MY EXPERIENCE IN STRAWBERRY GROWING.

JACOB SCHWAB, ANOKA.

In the first part of June, 1899, I broke up a piece of land near my meadow composed of black sandy loam on top, with sand mixed with clay as sub-soil. Here was raised a fine crop of turnips. In 1900, a good crop of potatoes was raised on it, in 1901 excellent corn. In 1902 barnyard manure was plowed in on it, and it was planted to cabbage, which was as good a crop as could be wished for, the heads weighing from fifteen to thirty pounds. In the late fall it was plowed and on the 1st of May, 1903, planted to strawberries. Those were cultivated, and no weeds allowed to grow, also later runners cut off, and all blossoms removed during the season. They made a fine appearance. About the middle of December, 1903, they were covered about one foot deep with straw. Soon after this straw was put on, a heavy snow storm came, accompanied by a very strong wind. This made a solid mass of ice and snow that remained on until in April.

To the north and adjoining the strawberries was a lot of big corn in the shock. This was drifted full of snow from two to three feet deep and remained until in April, when it thawed out and made the soil very wet. After the snow and ice was all thawed out I took most of the straw away, leaving it from one to two inches deep on the plants. Nine-tenths of them looked as if they were dead. Some of them recovered, and we had a few splendid berries.

CELERY AND ONIONS may be grown together. The onions will be out o the way before it is necessary to ridge up the Celery. The Yellow Danvers or Red Weathersfield will be ripe about the middle of August, after which the celery can occupy the land alone.

THE PETER APPLE.

(A discussion.)

The President: Mr. Brackett has something to bring before you in which I hope all of you will be interested.

Mr. Arthur Brackett: Mr. President, Ladies and Gentlemen: I want to bring this question of the Wealthy apple before you. I am interested in the matter, and I live near the place where it originated. I believe the Wealthy apple is worth more than all the rest of the apples put together. If I were asked to name my choice among apples, I would say the Wealthy every time. We may have apples that come up to the Wealthy, but we have not tested them. The point I wish to bring up today is this: I have taken the trouble to go to the old Gideon farm and get some of the Wealthy, and they were taken from some of the original trees. I also have some Wealthy apples here that are called "Peter," and I have marked them very plainly so as to know which is which. If I get them separated I cannot tell them apart. These apples are taken right from the Wealthy and Peter trees as Mr. Gideon had them marked. There is no liability of a mistake. They were marked with copper labels.

Mr. Elliot: Who marked them?

Mr. Brackett: Mr. Getchell marked them from the list.

Mr. Elliot: I want to know who made that list?

Mr. Brackett: It was done by Briggs and Gray, the owners, or their manager. The original list was made by Mr. Gideon himself.

Mr. Elliot: Was that the original list?

Mr. Brackett: I understand Mr. Gideon made the original list and kept them distinct, according to their ideas. I think we have heard of the Peter as well as the Wealthy. If there is any such apple as the Peter we want to know it, but the majority of the fruit growers throughout the state think there is nothing but the Wealthy, and the Peter shown at our fairs are all picked from Wealthy trees. We are sending them out all over the United States. When a man gets the Wealthy, he usually sends for the Peter and pays express and expects to get something different, but it is really the same thing. We are trying to distinguish between the two, but the difference is so small, if there is a difference, that we are not able to tell what it is. I say if there is no difference between the two the Peter ought to be stricken from our list. Prof. Green told me I could say for him that for years he had been acquainted with the apples as much as any man could be, and that he never could see any difference between the two apples. Prof. Green is one of the best authorities we have here.

Right down here in the basement of this building the man who took the first premium on Wealthy and Peter, and the man who put them on exhibition, told me and told Mr. Lyman that the Wealthy and Peter were taken from the same tree. (Laughter.) I think it is time the society called a halt on such proceedings, and if there is no difference let us say so. I would like to put this matter to a vote, and if there is anybody here who can tell the difference I would like to have him come up here and look at these apples and tell the audience which is which. If there is any difference I would like to know it, and there are a whole lot of other people who would like to know it. These came from the Gideon farm, and I would like to know whether there is any one present who is able to identify them.

Mr. Elliot: Before we vote I want to have the privilege of putting my knife into each of those apples.

Mr. O. M. Lord: I had a talk with Mr. Gideon before he died in regard to the Wealthy and Peter. I told him I had always supposed the Peter to be a seedling by itself. He said the Peter was a seedling of the Wealthy, but there was so little difference between the two that it was hardly worth naming, that he could not tell the Peter from the Wealthy any way in the world except by cutting into it. He said it looked like the Wealthy and was the Wealthy to all intents and purposes, but when he cut into an apple and it was streaked with red he called it the Peter.

Mr. Elliot: Since this matter regarding the difference between the Wealthy and the Peter has been agitated I have cut a thousand or two thousand apples. I have taken every opportunity possible in the last three years to inform myself as to the difference between the two varieties, but previous to that Mr. Gideon told me about the Peter and Wealthy and pointed out to me the exact location where each tree grew. They have long since passed out of existence, both of them. The Wealthy threw up some sprouts a few years ago, which were distributed by his son, and I have three of the trees that grew from those sprouts, but it does not give me any light in regard to the variety. Some claim that a change comes over the fruit in the method of propagation. How true that claim is I do not know. Now in regard to the difference between the Wealthy and Peter as grown today, I claim there is a difference, but not so much difference that you can always tell upon which tree the apples grew. But there is something in this agitation that Mr. Brackett is raising of making the two into one. Some nurserymen claim they can tell the difference almost as far as they can see the trees. Among others, Mr. Patten and Mr. Sherman, of Iowa, make this claim. We have people who take the other side of the question. Prof. Hansen and I have cut a great many apples together trying to find whether we could find any distinguishing marks, and I have continued that practice right along, and I found in our orchard at Lake Minnetonka a difference in the productiveness and also in the formation of the seed, the seed carpels, calyx and blossom, and also somewhat in the shape of the apples. I think I can distinguish a little difference between the flavor of the apples. I know in some years there is a difference in the texture of the apple, that is, the flesh of the apple, and Mr. Gideon frequently said to me that the Peter was a better keeper than the Wealthy. Of course, I cannot call up Uncle Peter to decide this matter—he may be present with us today; but we have got it on the records, and before we put this question to a vote I would like to have the privilege of cutting these apples.

Mr. Sherman (Ia.): In regard to this question as to the difference between the Peter and the Wealthy, we have the Peter and also the Wealthy. We got the original stock from Fort Dodge, from Mr. Haviland, with whom Mr. Gideon contracted to grow the Peter for him. We got our stock from him, and while I cannot pass upon the fruit, I know there is a difference. I do not think a careful nurseryman would pass judgment on the dispute. The Peter is a better grower, makes a better stand and is better in every way than the Wealthy. While the difference is, perhaps, not very marked, still it is quite as well marked as the variations in some other varieties.

Mr. Emil Sahler: Which is the longest keeper?

Mr. Sherman: I would not say as to that, of my own knowledge, but I think the reputation Mr. Gideon gave the Peter is true.

Mr. Lord: Mr. Gideon told me that the Peter was a seedling of the Wealthy, that it was a little different tree, that he could tell the difference between the trees, and he thought the Peter would keep a little longer than the Wealthy.

The President: I was at Mr. Sherman's place this summer and, remembering his former statements to me, I was interested in looking at the rows of Wealthy and Peter with reference to this very matter regarding the difference in appearance, and it did appear to me that there was a decided difference in the appearance of the tree, and I think it would be obvious to any one who went along the rows. It appeared to me as though there was a distinct difference, a difference that appealed to the eye, and I believe that distinction could be noticed by any one.

Mr. Sherman: We found what we thought to be another marked difference, and that is a decided difference with regard to their susceptibility to root-killing. The Peter is markedly better than the Wealthy in that particular. I do not think a fruit test is always a fair test of a variety. It is a common thing for the Wealthy to nearly reproduce itself. I think at least a half dozen persons told me they had seedlings from Mr. Gideon himself from Wealthy trees that they could not distinguish from the Wealthy.

Mr. C. W. Merritt: I think the soil in which the Wealthy is grown makes a vast difference. I had the Peter and the Wealthy both.

Mr. A. B. Lyman: I was talking with Mr. Gideon's son, and he thought his father was mistaken in regard to there being any difference.

Mr. A. A. Bost: So far as that is concerned they are exactly alike. The original tree is not standing, but those that have been planted were planted for original trees, and there is no question but what they were just what Mr. Gideon called them. I think there is no question but what Mr. Gideon called them the Peter, those that are now called Peter, and so far as the difference between the tree and the fruit is concerned, I heard Mr. Gideon tell Prof. Green that there were no two apples that differed more widely, and Prof. Green asked him what he meant by that. He explained to Prof. Green, and as Prof. Green is here he can speak about that matter more definitely than I can.

Prof. Green: I think when varieties are so nearly alike that the original grower cannot tell them apart that for all practical purposes they are one and the same. I do not see how you are going to continue to propagate them unless you can tell them apart, and if they will soon lose their identity that will not amount to anything. In the Russian fruit commission we threw out a whole lot of apples, and we decided where we could not distinguish them readily we would group them under one head. We had a seedling at the state farm that was one of Mr. Le Duc's seedlings; I believe it was raised at Red Wing, but it has practically identical with the Wealthy, and we threw it out because we said it was practically useless to introduce it as a new variety. I was out to Mr. Gideon's place and talked with him, and I have not been able to make it plain to myself that there is any difference. Mr. Gideon made a reply this way in answer to a question I asked him: "Mr. Gideon, will you tell me exactly what the difference is between the Peter and the Wealthy?" "Well," he said, "here we have the Peter which is a little more upright and a little lighter in color." He tried to make me think I saw a difference, and finally after talking it over a while he made the remark, "It is right smart hard to tell the difference." But I tell you I have a little sentiment in holding the Peter on the list. If it were not for that we would wipe it out pretty quick. I believe Mr. Elliot feels that same sentiment, and I do not believe we are quite ready to take it off.

Mr. Elliot: Every grower of trees knows this to be a fact, that the same variety of tree does not always form the same seed in shape or color. Now the Wealthy has a little longer seed, it is not so stubbed as the Peter, and there is a difference in the shading, but it is very slight. However, if you cut a quantity of them and study the seeds for some time you will see there is a difference. When you come to the calyx you will find a slight difference, and then also in some of the samples of the fruit I cut there is a marked difference in the apples on the same tree. The Peter has a longer calyx tube than the Wealthy, and there is a very slight difference in the formation of the seed carpels. When you come to the leaf—of course, every leaf on a tree is different from any other leaf, they are not all alike, and you can always go to a tree and pick out several varieties of leaves, several different types, but you take the appearance of the tree and judge from that, and you can always tell the difference in the nursery—

that is one of the most distinguishing marks we have in those two varieties. Now when you come to the question of hardiness, it has been conceded by a great many orchardists that the Peter is hardier than the Wealthy, and that was always claimed by Mr. Gideon, and for that reason I am not in favor of taking it from the list. If our nurserymen are growing it, it is no detriment to the purchaser if he substitutes the Peter for the Wealthy and vice versa, not half as much as there is in taking a bundle of trees of several varieties and mixing them up and marking them "Wealthy," and for that reason I do not think we are doing any harm to the public in carrying the two varieties as we have done heretofore.

Mr. Ferris (Ia.): Old Peter Gideon named the tree Wealthy after his wife, then he named the Peter after himself, and some other apples he named after other members of his family. There may not be much difference between the Wealthy and the Peter, and it would detract little if any from his glory to strike off the Peter, but, as Prof. Green has said, there is a sentimental reason why both should be continued even though they are very much alike, and I do not think it would harm any one to leave the matter just as it is.

Mr. Philips (Wis.): I always had lots of faith in Elliot, I don't believe he would tell a lie for anything, and he said he could tell the difference. I stopped with Uncle Peter one night, and we went out in the orchard together, and he showed me the difference between the two, but he told me the same thing he told Mr. Lord. Uncle Peter said, "There is hardly difference enough between the two to pay to buy the Peter if you have got plenty of Wealthy, but it will keep six weeks longer and is a little hardier than the Wealthy." It has been said in this discussion that there is no difference. I planted the Peter myself, and there is a difference in this one respect. I have got some Peter; the apples are redder, and you cannot find an apple on the ground, while a great many of my Wealthy drop off. The Peter are hanging on better than the Wealthy. I want to be fair and honest in this matter. I think more of old Peter Gideon than I do of anything in the world. Don't take the Peter off the list! (Applause.)

Mr. Yahnke: I tell you I hardly think it would be wise to carry the two apples on our list, and if it was anything else I would protest against it, but since I have heard those speakers plead for its retention for the sake of sentiment and to perpetuate the memory of Mr. Gideon I think it would be better to have them both kept before the people.

On motion of Mr. Elliot it was decided to keep the Peter on the list by a vote of 58 to 3.

Summer Meeting, 1905.

Minnesota State Horticultural Society.

The regular summer meeting of the society will be held, as now for the past many years, in Armory Hall, at the Minnesota State Experiment Station, St. Anthony Park, on Wednesday, the 21st day of June.

Some radical changes in the conduct of our summer gathering have been considered by the board, but the decision has been reached to follow the lines adopted at previous similar gatherings. The arrangements that have long been in practice seem to promise more satisfactory results than any deviations therefrom that have been considered. This date is set to bring the meeting as near as possible at the time when the strawberry crop in this vicinity is at its best. Unfortunately this is a little late for berries from the southern part of the state and too early for those from the extreme northern part. Bring what you can, however, of early and late varieties, from other localities than this immediate one.

The show of flowers at the summer meeting is a very interesting feature of the occasion. Roses are mature at about the date set, and if peonies, for which special prizes are offered also, are a little late, the blooms can be kept in cold storage without any difficulty for exhibition at that time. Premiums are also offered for bouquets of perennial flowers, and it is hoped that a large number will bring such floral offerings to be used upon the lunch tables.

The day will be given up largely to festivity and sociability. The Experiment Station never looked so well as now, and this season of the year is especially favorable to enjoy its beauties and study as well the character of the work that is being done there.

A basket lunch (for members of the society and adult members of their families) will be spread in Armory Hall at 12:30 o'clock, and all attending who take part in this function are expected to contribute towards it. The necessity for this will be realized when it is understood that the lunch is made up almost entirely from the contributions of those who attend. Strawberries will be furnished for the table from those having been placed upon exhibition, to be used immediately after judging the fruit. Tickets good for seats at the table can be secured by members for themselves and accompanying friends from a committee in the hall wearing the society badge. Persons present who are not members of the society are urgently invited to become such, which they can do by paying $1.00, the annual fee, to Secretary Latham.

No special program has been prepared for the afternoon session of the society, which will begin at two o'clock and end at 3:30. It will be, as last year, a strictly impromptu program, and the time will be taken up with the display of fruits and flowers by the exhibitors, and talks in regard to the articles exhibited. A special opportunity will be given for asking and answering questions, and experience shows that this method of conducting this exercise makes the occasion a very entertaining and profitable one. Practical thoughts on any horticultural subject will also be in order for presentation from any one present. Let us make the most we can of this opportunity to draw out facts, especially in regard to the articles on exhibition. A Question Box will be provided, in which any questions may be dropped by those who prefer to present them in this way.

Come early and spend the day with us! It will certainly be delightful weather, at least it has never failed to be so at our summer meeting in a great many years.

HOW TO REACH THE GROUNDS.

Take the Como-Interurban electric car in either St. Paul or Minneapolis, and get off at Commonwealth Avenue, where carriages will be found waiting to carry the visitors to the grounds, one-half mile distant, from 9:30 a. m. to 1:30 p. m. Those who drive over in their own conveyances will find ample accommodations on the grounds for stabling.

Do NOT take the Interurban car, but TAKE the Como-Interurban-Harriet car.

CLARENCE WEDGE, President, Albert Lea.
A. W. LATHAM, Secretary, 207 Kasota Block, Minneapolis.

PREMIUM LIST.

All exhibits must be entered with the secretary and in place by 11:30 a. m. to be entitled to compete for premiums.

Exhibitors competing must be members of this society and the growers of the articles exhibited, which must have been grown in Minnesota and be correctly labeled.

Fruits and flowers shown become the property of the association and will be used at the mid-day lunch.

N. B.—At the afternoon session exhibitors, in all classes, will be called upon to talk about the articles exhibited, describing them, giving methods of cultivation, etc., using the articles themselves as object lessons.

LABELS.

Exhibitors are requested to send to the secretary *at once*, as far as possible, lists of their entries, and large printed labels will be prepared to use on the exhibits.

FLOWERS.

Bring out the Flowers.

	1st prem.	2d prem.	3d prem.
Each named variety of out-door roses, six blooms..	$ .50	$ .25	
Each named variety of peonies, five blooms........	.50	.25	
Bouquet of perennial flowers....................	1.50	1.00	$ .50

STRAWBERRIES.

One quart of each variety shown.

	1st prem.	2d prem.	3d prem.	4th prem.
Collection of strawberries..............	$5.00	$4.00	$3.00	$2.00
Each named variety of strawberries.....	.75	.50	.25	
Seedling strawberry never having received a premium from this society..	3.00	2.00	1.00	

APPLES. (Not kept in cold storage.)

	1st prem.	2d prem.
Best plate of any named variety of apples (of average size and in good condition)...............................	$1.00	$ .50
Plate of seedling apples	2.00	1.00

CURRANTS AND GOOSEBERRIES.

One quart of each variety shown and branch of same with fruit and leaves.

	1st prem.	2d. prem.
Each named variety of currants	$ .50	$ .25
Each named variety of gooseberries.........................	.50	.25
Seedling currant	1.00	.50
Seedling gooseberry	1.00	.50

Secretary's Corner.

APPRECIATIVE WORDS.—"You are conducting the greatest work for the material welfare of the state, in my judgement."

HISTORY REPEATS ITSELF.—In a letter from our treasurer, A. B. Lyman, under date of May 9th, he says that, "We are having a snowstorm. Fifty-two years ago today my father settled here in Chanhassan, and I remember his having said there was quite a snowstorm on that date."

A LATE NUMBER.—This number of the "Horticulturist" is necessarily a a few days late to give opportunity to fix, with some degree of approximation, the date of the summer meeting, to be held as intended at the height of the strawberry season. The July number may be also a little late on account of material following the meeting to be gotten into that issue.

ABSENCE OF PRESIDENT WEDGE.—On account of carrying out of a plan to visit the Pacific Coast during the summer months, our president will not be with us at the summer meeting, and in pursuance of his wishes, Prof. Samuel B. Green will occupy his place as presiding officer on that occasion. Mr. Wedge leaves for Portland on the 17th inst., the date of his return not being announced.

EXPERIMENT WITH PYRUS BACCATA BUDDED TREES.—This important experiment, notice of which appeared in the Secretary's Corner of the May number, is proceeding satisfactorily. Word received from most of the trial stations indicates that the trees are growing well, and as far as we have heard all of them are alive. Zinc labels properly numbered, as well as blanks for keeping record and making report of the development of these trees, have been sent to all those who are conducting the experiment.

STATE INSPECTOR OF APIARIES.—The Minnesota Bee-Keepers' Association were successful in securing from the late session of the state legislature a law creating the office of state inspector, the purpose of which is especially to assist in stamping out the dread disease of foul brood, which, according to the bee-keepers, needs urgent attention. A salary of $1,000 goes with this appointment, the inspector to pay his own expenses. Mr. William Russell, of Minneapolis, one of the officers of the Bee-Keeper's Association, has received the appointment.

FLORIDA HAS A STRONG SOCIETY.—A recent letter received from Mr. Oliver Gibbs, from Melbourne Beach, Florida, where he is located for a time on account of a needed change for the good of his health, says, "The Florida State Horticultural Society is a strong society, second only in point of numbers, I think, to yours: membership about 800. Jacksonville is the convention city of the state and considers this society as its special pet." Incidentally Mr. Gibbs notes that they are just beginning to eat watermelons. He says it is not likely he will come north this year.

ENTRIES FOR EXHIBITS AT THE SUMMER MEETING.—Prospective exhibitors at the coming summer meeting are urgently requested to send lists of their probable entries to the secretary at the earliest possible date, and if they reach him in time labels in large, plain type, will be printed for each article shown in the exhibit, which, we believe, will add very much to the interest of the display. This will also give opportunity to prepare the entry cards, which has become quite an arduous task, since the entries are so many and the time so limited when the work has all been done at the meeting.

FRUIT PROSPECTS IN MINNESOTA.—While nothing very definite can be said yet in regard to this, it is known that the weather conditions were unusually favorable during the blossoming period throughout most of the state, except possibly during a portion of the period of early blossoming of plums. Fruit trees are in general looking very healthy and vigorous, and, with the exception of Wealthy and in some cases other varieties that over-bore last year, a good crop may be fairly anticipated. This may be said equally of all varieties of small fruit, excepting, of course, strawberries and bush fruits that were not well covered. It does not pay to take any chances in leaving off the covering from these fruits.

NOTICE OF SUMMER MEETING.—It is hardly necessary to call the attention of our readers to the notice of the annual summer gathering, which is found on two preceding pages. It is very much to be desired that every member bring something to add to the display, either fruits or flowers. Nearly every one can at least bring a bouquet of perennial flowers, which will add greatly to the attractiveness of the tables. There is no material change in the conduct of this meeting from that of the preceding years. The use of tickets in connection with seats at the table is only a repetition of the method pursued last year, which was found to be quite satisfactory. If you have ever attended one of these summer gatherings, no special invitation is needed; if not, we urge you to come out and enjoy the occasion with us. It will be a "red letter day" in your life.

MINNESOTA STRAWBERRIES IN APRIL.—Very early in May, Mr. Otto Kankel, of Fertile, Minn., in the Red River Valley, sent in a little box by mail two fully ripe strawberries of the Senator Dunlap variety. They were neatly packed with fresh strawberry leaves around them. Referring to them in later correspondence, he says: "I planted some strawberry plants in six-inch flower pots last September, leaving them out of doors until the frost came, when I took them in the house. We had strawberries on them by February. The plants were fed with ashes and liquid manure. I kept them about a foot from the window on the south side of the house, in a temperature about the same as is suitable for geraniums or other hardy house plants. I think next year I will put the pots in the ground early enough to let the plants grow in them, and they will do better still when growing in them from the start."

CONSTITUTION FOR LOCAL SOCIETIES.—The constitution adopted by the McLeod County Horticultural Society was printed in the May issue of the Horticulturist. Attention is called to this fact that any who are contemplating a similar organization in their own neighborhood may bear this in mind, as, while each local society adopts a form of constitution especially fitted to its thought, there are good points in this constitution that may be studied to advantage. It is the purpose to print soon, also, the form of constitution adopted by another society lately organized at Willmar. Is there such an organization in your vicinity? Great good may be done by a local society if there is some one willing to sacrifice a little to create and maintain it. Nothing worth having in this world is to be had except by somebody's sacrifice, and the organization and maintenance of a local horticultural society is no exception to this rule.

THE NORTH STAR APPLES.—There are two good varieties under this name. The first sent out under this name was originated by Chas. G. Patten, Charles City, Iowa. It is medium or below in size, slightly acid, good quality, late fall. Color, clear waxen yellow with warm reddish bronze blush.

The other variety sent out under this name later is a seedling of the Duchess, originated by J. W. Dudley, Arostook County, Maine, and sent out by a nursery of Rochester, New York. It has a very bright colored, good, pleasant subacid, late fall and early winter apple. It is now called Dudley Winter, but in accordance with the rules of the American Pomolgical Society, this name should be shortened to Dudley. One or two years I have noticed this variety on exhibittion at the Minnesota State Fair; its very bright color entitles it to a trial, but its season may not prove long enough.

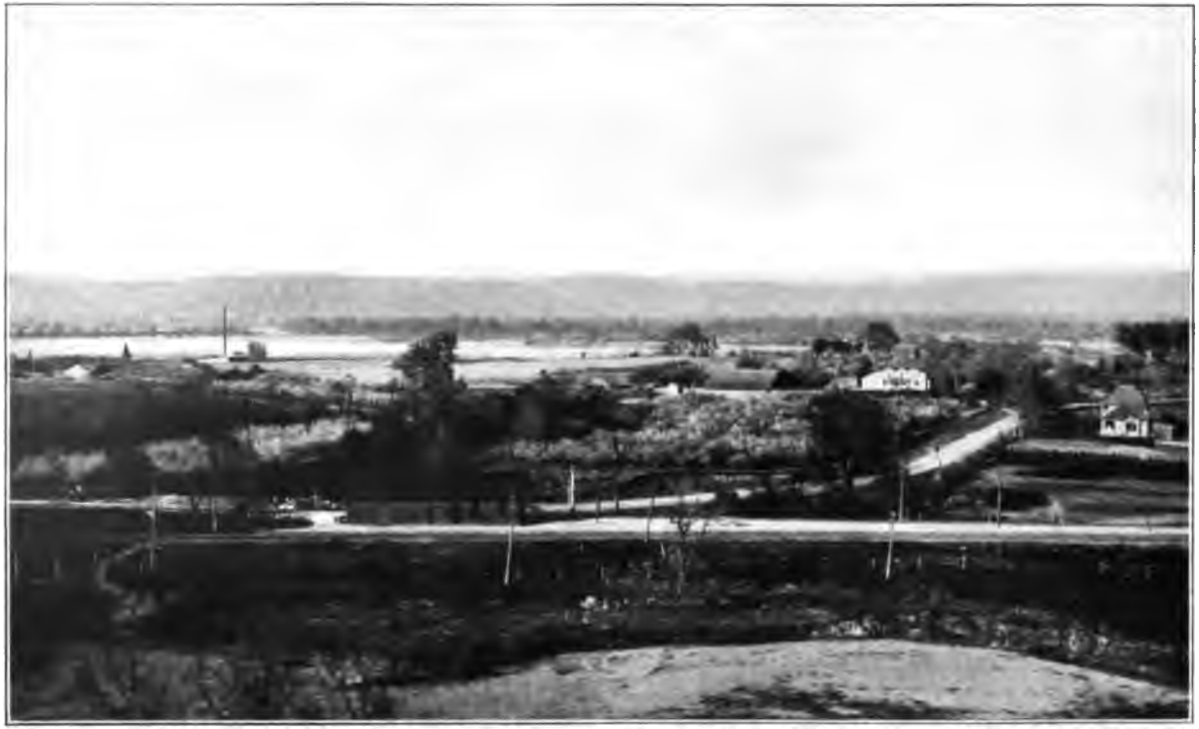
PROF. N. E. HANSEN, Brookings, S. D.

"THE GOLD MINE IN THE FRONT YARD—and how to work it."—This is the characteristic title of a book issued from the pen of C. S. Harrison, of York, Neb., whom the members of our society attending the last few annual meetings will remember well as adding a brilliant feature to these gatherings. His natural eloquence finds outburst in this book, which, while it is really devoted to the culture of hardy shrubs and herbaceous plants adapted to the front yard especially, is clothed in language abounding in brilliant periods and sprightly sentences, a marked contrast to the standard works preceding this on similar subjects. The reader will be both delighted and instructed in pursuing this most interesting and yet practical work. He will fall in love with many flowers of familiar name, of which the study of this work may show him that he knows comparatively little about. Special attention, of course, is paid to the subject of peonies, in the growth and production of new varieties of which Mr. Harrison has long been known as an expert. But the book is by no means confined to this one species of flowers. The book closes on page 279 with the following characteristic paragraph: "There is no farm in the great northwest which cannot be greatly improved and made homelike. A man should have an ambition to make the most possible of his home. It should not be an eyesore and a plague-spot. It should match the greenness of the field, the beauty of the prairie and forest, and repose of the waters and all the loveliness of nature. And so, my friends, you will fix up, wont you?" The first lines of chapter one are equally indicative of the writer: "The home. This should not be a kennel, a sty, a stable or a barn. It is the dwelling place of immortals. It should be the most sacred on earth."

The book is issued by Webb Publishing Co., St. Paul, 208 pages. Price, $1.00. It is handsomely gotten up, printed on heavy paper and well illustrated, neatly bound in light colored cloth; an attractive, useful and inspiring book.

THE WESTERN FARMER AND DAIRYMAN.—A fourth agricultural paper published in our state is being issued at Mankato under the above title. Mr. W. W. P. McConnell, well known to our readers as for a number of years Dairy and Food Commissioner of this state and the present president of the National Dairy and Food Association, has assumed the position of editor. The title indicates that special attention will be paid by this new periodical to the dairy industry. I note that the numbers at present issued are paying some attention to horticulture, but as yet no one has been appointed to take special charge of that department, which defect will, however, undoubtedly be remedied soon. The subscription price is placed at fifty cents per annum, the same rate charged by our other agricultural papers.

1. Plum Orchard No. 1, 200 trees. 2. Plum Orchard No. 2, 300 trees. 3. Plum Orchard No. 3, 500 trees. 4. Residence.



VIEW OF HOME AND GROUNDS OF MR. O. M. LORD, MINNESOTA CITY.
Taken from bluff south of the railroad track and looking north.

THE MINNESOTA HORTICULTURIST.

VOL. 33. JULY, 1905. No. 7.

Summer Meeting, 1905,

MINNESOTA STATE HORTICULTURAL SOCIETY.

A. W. LATHAM, SECRETARY.

The annual summer gathering of our society was held at the Experiment Station, St. Anthony Park, on Wednesday, June 21, as announced in the regular notice, the day proving to be a pleasant one, although during the early morning hours there were many threatening clouds in the sky. The purpose of holding this meeting at the height of the strawberry season in that locality was frustrated by the almost continuous cold and cloudy weather of the preceding two weeks. As a result of these climatic conditions the showing of strawberries and also roses, that open at about the same time that the strawberry crop matures, was the lightest that has been made at the midsummer gathering in many years.

About one hundred plates of strawberries were on exhibition, including fifty-six varieties, the largest proportion of which came from the fruit farm of Mr. J. P. Johanson, of Excelsior. An unusually large exhibition of roses was promised, but the buds not being open sufficiently to exhibit, this part of the display was cut down considerably, but nevertheless there were approximately one hundred vases of roses on display, many of which were at their best. The display of peonies was magnificent. The usual date of the meeting being a little too late for peonies, this year caught them exactly right. John Hawkins, of Minneapolis, made a very fine display of peonies, as also did the Jewell Nursery Co., of Lake City. The last mentioned exhibitor furnished also most of the roses on exhibition. Those who are interested in this feature of the meeting will glean considerable in the way of details as to the display by consulting the list of premium awards, which follows this article.

The attendance, notwithstanding the threatening weather in the early part of the day, was nearly if not quite up to the maximum on these occasions, there being at least two hundred served at the picnic dinner.

The weather was ideal, being cool and dry, for those who wished to stroll about the grounds and see the various changes and improvements which are being made from year to year, that greatly improve the appearance of this most attractive place.

The regular session of the society was held in Armory Hall after clearing away the paraphernalia used in serving dinner, the meeting being called at about two o'clock. Great banks of peonies, roses and other flowers across the end of the hall towards which the audience faced, and along each side, made a gorgeous setting for the occasion and furnished many texts for the practical talks that made up the program.

In the absence of the president, Mr. Clarence Wedge, of Albert Lea, Prof. S. B. Green presided at the meeting in his usual happy and informal way. An impromptu program was given by a number of exhibitors and visitors present who were called upon and spoke briefly and to the point. In opening the presiding officer, in the absence of Dean Liggett, extended the usual words of greeting to the society, which has now for so many years held its summer meeting at the Experiment Station. A letter was also read by him from Gov. Johnson, who had been invited to attend the meeting, but found himself unable to be present.

Mr. C. M. Loring, of Minneapolis, being called upon, complimented the society for what it has done, comparing the early efforts made to have flower displays to what is now being accomplished, and saying many words of encouragement as to the outlook for further work.

Mr. J. M. Underwood, of Lake City, spoke in a general way as to the plans being formulated for the exhibition of horticultural and agricultural products to be made in Agricultural Hall at the next state fair, of which department he is superintendent, and urged members to continue their interest especially in the horticultural department as heretofore. Mr. Underwood also suggested an important change in the method of conducting the summer meeting of this society, looking to the entire occupation of the audience room in Armory Hall, where the society was meeting, by the fruit and flower exhibits, for which liberal premiums should be offered for displays by fathers, mothers, brothers, and sisters, etc., to bring out enough flowers and fruits to fill the hall. This plan would do away with the present method of serving a common picnic dinner and compel each member to "rustle" for his own lunch. Mr. Bacheller and Mrs. Wilcox both spoke in favor of such a change in the plan of conducting the summer meeting.

Mr. F. F. Farrar, of White Bear, upon request, talked a short time about the "Best four strawberries," which he named as, 1st, Brandywine; 2d, Sample; 3d, Tennessee Prolific; and 4th, Haverland. He commended the Brandywine especially on account of its most excellent qualities as an eating berry and its value for canning. Mr. Farrar also exhibited a plate of Isabella, which he spoke of as being a heavy bearer and also good for canning, and a good variety for those who like a sour berry. He said that of berries not covered at his place the past winter the Senator Dunlap came out in best condition.

Mr. J. P. Brown, of Excelsior, secretary of the Minnesota Rose Society, spoke first of the annual exhibition of that society which will take place at Excelsior July 1st, when a very large exhibit of roses is expected, and for which correspondingly liberal premiums have been offered. He gave as his choice of Hybrid Perpetual roses for general planting the following: 1st, Ulrich Brunner, a dark red, no thorns, and keeps its color when gathered; 2d, Margaret Dickson, white, profuse bloomer, with long stems; 3d, John Hopper, hardy and blooms well; 4th, Mme. Gabriel Luizet, beautiful bloom, very fragrant and quite hardy. He emphasized the superior value, as shown by his experience, of roses budded on the Manetti stock, and especially as that increases their hardiness over those grown upon their own roots.

Mr. Chas. Nordine, rose grower for the Jewell Nursery Co., being called upon, also gave a list of varieties doing especially well on their soil, and differing almost entirely from that given by Mr. Brown. He named the following as being very satisfactory: Francis La Veit, Clio, General Jacqueminot, Anne de Diesbach and Ulrich Brunner.

Mr. Nordine spoke particularly of covering roses for winter protection, and suggested that it was important to keep the vines dry over winter, which can be done successfully by putting a little straw on the ground, laying down the roses and covering them with a sheet of tar paper, upon which a light covering should be placed to protect them from the severe changes of temperature.

Mr. John Hawkins talked briefly as to peonies and their for general planting. He recommended especially fall planting, preferably September, as if they are put in at that season they will be ready to bloom the next year. He mentioned as his favorites Festiva Maxima, white; Grandiflora Rubra, red; L'Esperance, pink; and the Baroness Rothschild, blush pink.

Mr. Wyman Elliot spoke briefly as to seedling gooseberries, in the growing of which he has had long experience. He recommends the American varieties, on account of their large exemption from the mildew so common to English varieties. From his experience of nine years of growing a large number of seedlings he has selected one, which he calls the "Carrie." It is free from mildew, is hardy and a prolific bearer, and judging from the branches loaded with fruit which he exhibited to the audience he may be right in calling it "the coming gooseberry for this region." He also exhibited several plates of apples, one of especial interest being what he considered the best seedling variety from the last orchard planted by the late Peter M. Gideon.

Prof. F. L. Washburn gave us a little talk about the cabbage fly and the comparative value of the liquid and dust spray. A lively discussion as to spraying developed the fact that there is no present agreement as to which is the better method, each having value under varying circumstances.

Many important facts were brought out in the impromptu talks reported briefly above, but as there was no stenographer to make a verbatim report we failed to secure more than is here noted; and as each of these talks was interspersed with references to the exhibits in hand a verbatim report was practically impossible. The best way to get the most out of these meetings is to be there. Come and spend the day with us, and you will carry away memories of a most enjoyable occasion and much information of value!

The session of the society broke up at 4:30 with the distribution of the flowers to the audience, there being enough roses and peonies to go around and give a nice bouquet to every person present who cared for them. This statement will be something of a guide as to the magnitude of the flower display.

Grass that Ferments.—Mow the grass once a week if you want a dense, springy turf of soft, velvety grass. It is easier and better to mow twice a week in growing weather, and to let the cut grass remain, than to mow once in two weeks and remove the cut grass. The lawn will burn if chopped close in hot weather and if the short cut grass is not left to shield the roots from the sun. Long grass, however, should not be allowed to lie on the lawn. It may ferment or cause the grass beneath to turn yellow. July *Country Life in America.*

AWARD OF PREMIUMS.

Summer Meeting, 1905, Minnesota State Horticultural Society.

ROSES.

Salet Moss	Jewell Nursery Co., Lake City	First	$0.50
John Hopper	"	First	.50
Multiflora	"	First	.50
Princess Adelaide	"	First	.50
Persian Yellow	"	First	.50
Fisher Holmes	"	First	.50
Ulrich Brunner	"	First	.50
Prince Camille de Rohan.	"	Second	.25
Crested Moss	"	First	.50
Baroness Rothschild	"	First	.50
Paul Neyron	"	First	.50
Clio	"	First	.50
Victor Verdier	"	First	.50
Yellow Harrison	Thos. Redpath, Wayzata,	First	.50
Yellow Harrison	S. R. Spates, Wayzata,	Second	.25
Francis La Viet	John Hawkins, Minneapolis,	Second	.25
Ulrich Brunner	"	Second	.25
Blanche Robert	"	First	.50
Glory of Mosses	"	First	.50
Magna Charta	"	First	.50
Mme. Gabriel Luizet	"	First	.50
Gen. Jacqueminot	"	First	.50
Mdme. Plantier	"	First	.50
Gracilis	"	First	.50
Prince Camille de Rohan.	"	First	.50
Crested Moss	"	First	.50
Rugosa Rubra	W. H. Smith, Farmington,	First	.50
Climbing Victor Verdier.	Jewell Nursery Co., Lake City	First	.50
Gem of the Prairie	"	First	.50
Rugosa Rubra	"	Second	.25
La France	"	First	.50
Mt. Carmel	"	First	.50
Francis La Viet	"	First	.50
Queen of Waltham	"	First	.50
Mdme. Plantier	"	Second	.25
Mdme. Chas. Wood	"	First	.50
Duke of Edinburgh	"	First	.50
Seven Sisters	"	First	.50
Dawson	"	First	.50
Magna Charta	"	Second	.25
Yellow Rambler	"	First	.50
Belle of Pottivine	"	First	.50
Flora McIvor	"	First	.50
Helena	"	First	.50
Dark Red Moss	"	First	.50
Margaret Dickson	"	First	.50
Alfred Colomb	"	First	.50
Oakmont	"	First	.50
Henderson's Jubilee	"	First	.50
La Prince Vera	"	First	.50
Anne de Diesbach	"	First	.50
Gen. Jacqueminot	"	Second	.25

MRS. A. S. HANSON,
MISS EMMA V. WHITE,
Judges.

PEONIES.

Grandiflora Rubra	Alfred O. Hawkins, Excelsior	Second	.25
L. Esperance	"	Second	.25
Victoria Tricolor	"	Second	.25
Galatizuma	Jewell Nursery Co., Lake City	First	.50
Princess R. Robasco	"	First	.50
Grandiflora	"	First	.50
Sulphurea Alba	"	First	.50
Princess Clothilde	"	First	.50
Duke of Wellington	"	Second	.25
Paeoneas Rubra	"	First	.50
Modesty	"	First	.50
Grand Duke Alexis	"	First	.50
Joe Veemain	"	First	.50
Zibrikoff	"	First	.50
Madam Courant	"	First	.50
Madam Channy	"	First	.50

Gladstone	Jewell Nursery Co., Lake City	First	.50
Jean D'Arc	"	First	.50
Guard	"	First	.50
Jeromus	"	First	.50
Sweet Scented White	Thos. Redpath, Wayzata	First	.50
Lady Alice	S. R. Spates, Wayzata	First	.50
Faust	John Hawkins, Minneapolis	First	.50
Beaute Francaise	"	First	.50
Achilles	"	First	.50
Plenissima Rosea Superba	"	First	.50
Festiva Maxima	"	First	.50
Rosea Magna	"	First	.50
Formosa	"	First	.50
Tricolor Grandiflora	"	First	.50
Duchess d'Orleans	"	First	.50
Purpurea Superba	"	First	.50
Festiva Alba	"	First	.50
Rosea Elegans	"	First	.50
Baron Jas. de Rothschild	"	First	.50
Monsieur Durufle	"	First	.50
Louis Van Houtte	"	First	.50
Comte de Bessy	"	First	.50
Rubra Violans	"	First	.50
Duc de Cazes	"	First	.50
Mme. Breon	"	First	.50
Adelaide Delachi	"	First	.50
Maxima Alba	"	First	.50
L'Elegante	"	First	.50
Grandiflora Superba	"	First	.50
Comte de Nauteuil	"	First	.50
Funelina	"	First	.50
Insignes	"	First	.50
Isabella Karlitske	"	First	.50
L'Indispensible	"	First	.50
Modeste Guerin	"	First	.50
Pulcherrima	"	First	.50
Rubens	"	First	.50
Reine des Roses	"	First	.50
Andorensis	"	First	.50
Auguste Meillez	"	First	.50
Queen of Perfection	"	First	.50
Rose d'Armour	"	First	.50
Alexandria	"	First	.50
De Jussieu	"	First	.50
Cytherea	"	First	.50
Duke of Wellington	"	First	.50
Zoe Calot	"	First	.50
Taglioni	"	First	.50
Ebloyrante	"	First	.50
Dazen L'Enghein	"	First	.50
Pottsie Plena	"	First	.50
Edulis Alba	"	First	.50
Agida	"	First	.50
Victoria	"	First	.50
Princesse Mathilda	"	First	.50
Washington	"	First	.50
Maxima	"	First	.50
Edulis Superba	"	First	.50
Delachi	"	First	.50
Mdme. Vilmorin	"	First	.50
Victor Tricolors	"	First	.50
L'Esperance	"	First	.50
Grandiflora Rubra	"	First	.50
Whitleyi	"	Second	.25
Triomphe du Nord	"	First	.50
Rubra Triumphas	"	First	.50
Daniel Trotman	"	First	.50
Gen. Cavaignac	"	First	.50
Anemone Flora Rubra	"	First	.50
Whitleyi	A. O. Hawkins, Excelsior	First	.50
Festiva Maxima	J. W. G. Dunn, St. Paul	Second	.25
Sweet Scented Pink	S. R. Spates, Wayzata	First	.50

F. F. FARRAR,
FRED COWLES,
Judges.

BOUQUETS.

Perennial Flowers	Mrs. F. H. Gibbs, St. An. Park	First	$1.50
Perennial Flowers	E. W. Wilcox, Hugo	Third	.50
Perennial Flowers	S. R. Spates, Wayzata	Second	1.00

MISS EMMA V. WHITE,
MRS. A. S. HANSON,
Judges.

STRAWBERRIES.

Clyde	Alfred O. Hawkins, Excelsior	Third	.25
Sample	“	Second	.50
Haverland	“	First	.75
Enhance	“	First	.75
Johnson's Early	J. P. Johanson, Excelsior	First	.75
August Luther	“	Second	.50
Excelsior	“	First	.75
Michel's Early	“	First	.75
Palmer	“	First	.75
Texas	“	First	.75
Bederwood	“	Third	.25
Clyde	“	First	.75
Tennessee	“	First	.75
Wolverton	“	First	.75
Crescent	“	Second	.50
Lady Thompson	“	First	.75
Ridgeway	“	First	.75
Glen Mary	“	First	.75
Wm. Belt	“	First	.75
Splendid	“	Second	.50
Parson's Beauty	“	First	.75
Klondike	“	First	.75
Monitor	“	First	.75
Nick Ohmer	“	First	.75
New York	“	First	.75
Up-to-date	“	First	.75
Haverland	“	Second	.50
Kansas	“	First	.75
Hero	“	First	.75
Downing Bride	“	First	.75
Granville	“	First	.75
Sutherland	“	First	.75
President	“	First	.75
Challenge	“	First	.75
Arizona Everbearing	“	First	.75
Aroma	“	First	.75
Brandywine	“	Second	.50
Bismarck	“	First	.75
Marshall	“	First	.75
Maximus	“	First	.75
Parker Earle	“	First	.75
Rough Rider	“	First	.75
Bubach	“	First	.75
Seaford	“	First	.75
Sample	“	First	.75
Oregon	“	First	.75
Mark Hanna	“	First	.75
Dorman	“	First	.75
Mrs. Hanna	“	First	.75
Bederwood	Thos. Redpath, Wayzata	Second	.50
Warfield	“	Third	.25
Splendid	“	First	.75
Senator Dunlap	S. R. Spates, Wayzata	First	.75
Uncle Jim Blaine	“	First	.75
Challenge	“	Second	.50
Kittie Rice	“	First	.75
Robinson	W. H. Smith, Farmington	Second	.50
Isabella	F. F. Farrar	First	.75
Princess	H. Haggard	First	.75
Brandywine	“	First	.75
Bederwood	H. F. Busse, Sta. A., Mpls.	First	.75
Clyde	“	Second	.50
Big Berry from N. Y.	“	First	.75
Warfield	E. B. Miller, Bloomington	Second	.50
Senator Dunlap	E. A. Farmer, Minneapolis	Second	.50
Warfield	“	First	.75
August Luther	“	First	.75
Robinson	W. L. Parker, Farmington	First	.75
Corcoran	“	First	.75
Cfescent	A. O. Hawkins, Excelsior	First	.75
Enormous	J. P. Johanson, Excelsior	First	.75

W. L. PARKER, Judge.

APPLES.

Seedling	D. F. Akin, Farmington	First	$2.00
Seedling	“	Second	1.00
Repka Malenka	W. L. Parker, Farmington	First	1.00
Walbridge	“	Second	.50

LYCURGUS R. MOYER,
Judge.

CURRANTS.

Prince Albert	Alfred O. Hawkins, Excelsior	First	.50
Lee's Prolific	"	First	.50
London Market	"	First	.50
Red Cross	"	First	.50
Wilder	"	First	.50
Long Bunch Holland	"	First	.50
North Star	"	Second	.25
Stewart Seedling	"	Second	.25
Victoria	"	Second	.25
Red Dutch	"	First	.50
Versailles	"	First	.50
White Grape	"	First	.50
White Dutch	"	First	.50
Black Champion	"	First	.50
Fay's Prolific	"	Second	.25
London Market	Thos. Redpath, Wayzata	Second	.25
Pomona	S. R. Spates, Wayzata	Second	.25
Emperor	"	First	.50
Fay's Prolific	"	First	.50
Red Cross	"	Second	.25
Red Dutch	"	Second	.25
Ivory (White)	"	First	.50
Pomona	Wyman Elliot, Minneapolis	First	.50
May's Victoria	"	First	.50
Wh. Dutch	T. Redpath, Wayzata	Second	.25
Stewart's Seedling	H. F. Busse, Sta. A., Mpls.	First	.50
Victoria	"	First	.50
Long Bunch Holland	"	Second	.25
North Star	"	First	.50
Empress	S. R. Spates, Wayzata	First	.50

F. H. GIBBS, Judge.

GOOSEBERRIES.

Pearl	Alfred O. Hawkins, Excelsior	First	.50
Josselyn	"	First	.50
Houghton	"	First	.50
Seedling	Thos. Redpath, Wayzata	Second	.50
Perle	S. R. Spates, Excelsior	Second	.25
Red Jacket		First	.50
Carrie	"	First	.50
Houghton	"	Second	.25
Seedling	Wyman Elliot, Minneapolis	First	.50
Minn. Thornless	T. Redpath, Wayzata	First	.50
Minn. Thornless	S. R. Spates, Wayzata	Second	.25
American Cluster	A. O. Hawkins, Excelsior	First	.50

A. A. BOST,
A. B. LYMAN,
Judges.

NOTES ON THE ROCKFORD PLUM.

The following extract from a letter written by R. E. Hynson, of Mankato, Minnesota, will be interesting to plum growers in this region. He writes, "The Rockford plum stands at the head of all plums in Mankato. I got one dollar and twenty cents a bushel when other plums were a drug on the market at fifty cents a bushel. I had lots of orders for the Rockford that I could not fill. I want to mention that they came through the winter clear to the *tip of the branches.* They were larger and better this year than last year. Last fall I hauled out one-year old manure from the cow barn. I used a common road scraper and put one scraperful at *every tree,* on the southwest side. I believe if a man would do that every year and thoroughly cultivate the soil, they will live as long as a man. Judge Buck told me they were stricken from the list a few years ago for not being hardy. I do not think that was the cause; I believe it was over production, with no cultivation or mulching. The way my trees have borne with such a drought as we had five years ago without cultivation or mulching, would certainly kill any tree."

Midsummer Reports, 1905.

CENTRAL TRIAL STATION, ST. ANTHONY PARK.

PROF. S. B. GREEN, SUPT.

This seems to be a spring in which everything is doing well, and we have an unusual exemption too from injurious insects. Nursery stock and fruit plants as a whole have come through the past winter in good condition, and the outlook is for an exceptionally good crop of apples, plums and small fruits.

From some sections there were reports that the strawberries were rather weak early in the season, but I think since the weather has been so favorable that they have pretty generally picked up and are now doing well.

The ornamental plants on our campus are in a very good condition, and there has been very little winter injury. Our snowballs, as usual, were infested this year with the aphis, and we covered them with a tent and smoked them with tobacco, which had an excellent effect. I think our horticulturists should be more familiar with the use of tobacco smoke for destroying lice of different kinds on shrubs and trees. It is very effective and quite easily managed.

Our fruit tree and shrub seeds have started very well, and the outlook is promising.

We have raised about 1,500 potato seedlings this year, from which we expect interesting results. This is a line of experiment that is just now attracting much attention, and the object of it is to determine what varieties resist to the greatest extent the potato rot and blight.

We have about fifty peony seedlings flowering at this time, among which are some of considerable merit. They vary in color from single deep reds with brilliant yellow stamens to light pinks—many also are very double. If we did not have such a large number of excellent varieties in cultivation I should certainly expect to name a few of them, as they appear to be worthy of cultivation.

We are making a special point this year of the Beta grape seedlings, of which we have several hundred. This grape is perfectly hardy and of a good enough quality for general farm use, although not quite good enough for marketing. It is sweet enough so that children and others with good appetites will eat it greedily, and it is a most excellent grape for jelly. It, too, has the merit of being extremely productive, and it ripens early. We are propagating all the wood we can get of it and hope that our nurserymen will soon have sufficient stock so that it can be put on the market at a reasonable figure.

We are also trying to get some crosses between the Beta and some of the Labrusca sorts. Our chief difficulty has been in getting the pollen of the Labrusca at the time when the Beta is in flower. The latter flowers early, before any other kind except the native sorts, to which it is closely related. The only pollen that we have been able to use for these crosses this year has been that of the Janesville, which was in flower on our own place at the time the most of the Beta were in flower, and the pollen of a few Rogers' Hybrids, from Lake City, where we were able to obtain it, as the season is so much earlier there than here.

Weigelia Rosea.

Among the ornamental plants that are in their glory just now on our grounds, and one which appears to be of especial merit, is the Golden Syringa, which I regard as the best golden foliage plant we have when everything is considered. Its bright golden color appears early in the spring and continues throughout the season. It also produces a good show of bloom, which is fragrant and nearly as large as that of the common syringa.

Our Colorado blue spruces, that are now about twelve years old, are very beautiful. We made a special point of raising seedlings of these, and now they are of good size, and we find a large percentage of them have the very bright colors which are so much sought after.

Rosa rugosa is doing well. This is a grand rose, and when given plenty of root room and light and air never fails to be a success. There is a small brown snout beetle, however, that works into the side of the buds occasionally, as it does into those of other roses, and these need to be picked each day until they have been thinned out. It is seldom we have much trouble from this insect, but this year it is more abundant than usual.

The Tartarian maple is a small tree that should be better known. It is perfectly hardy and makes a pretty, small tree when grown in this form, or it does well in bush form. Its flowers are quite conspicuous and appear after the leaves are nearly full size. Later these are followed by reddish fruit, which is as conspicuous as the fruit of the common red maple. The form commonly known as Acer ginnala has rather prettier leaves, but is not quite so vigorous in growth.

About twelve years ago we obtained from Arnold Arboretum a high bush cranberry marked "Viburnum from the mountains of Pekin." This is quite different from our ordinary high bush cranberry, and yet is plainly closely related to it, probably close enough to have the same specific name. It is conspicuous when in flower and in fruit and perfectly hardy. I think this is a shrub that is worth introducing into cultivation.

The Ginko, or Maiden Hair tree, we have tried repeatedly at the Experiment Station but have failed to make a success of it. At the old Grimes' place in Minneapolis I recently saw a specimen of this tree that is fully eight inches in diameter and perhaps twenty-five feet high, and as thrifty and perfect as an oak would be. I am anxious to get hold of some of this stock and think we will have to try it by grafting. The stock of this plant that we have experimented with most largely came from seed obtained from the U. S. Department of Agriculture and was grown, I believe, on trees on the grounds of the department in Washington, D. C. It seems from the tree at the Grimes' place, which is not especially protected, that if we could get hold of the hardiest form of this tree it would undoubtedly be of value for this section.

Syringa villosa is now in its glory, and yet the common lilacs have been gone over two weeks. When the common lilacs were in flower I thought the Rouen, or Rothmagensis, lilac the most beautiful of all that I had seen. This is an old favorite and is sometimes called the Persian lilac, but has broader leaves and is much hardier than the old Persian form.

We have just commenced to fruit the New Globe tomato in our greenhouses. This tomato is the most satisfactory we have ever used for this purpose. The fruit is large, round, pink, solid, with few seeds and sets an enormous quantity of fruit; ripens two weeks ahead of Beauty and New Stone and has but a small amount of foliage. It is the most promising novelty in tomatoes that we have had in a long time. If it proves to be as good in the field as it has in the greenhouse, it is destined to be a most popular sort. We have had considerable rot on Beauty and New Stone but none on New Globe when growing in the same bench.

JEFFERS TRIAL STATION.

DEWAIN COOK, SUPT.

Fruit trees wintered as well as usual and apparently none of our standards were injured by the very cold weather of the past winter.

Plums will be a light crop. The plum rot (Monilia) destroyed the bloom of the early blooming varieties and of many of those that bloomed later, nevertheless several of the old standbys are set for a very good crop.

The prospect is also good for a large crop of apples. Crab apples bloomed very full, but some kind of a blight destroyed most of the bloom. This blight was not what is commonly known as the fire blight but more like that which destroyed the plum blossoms. Still the Florence and several other varieties have set for a good crop.

Fire blight has not put in an appearance so far this season.

Some Validimir cherry trees are bearing a fair crop. Strawberries are just beginning to ripen, but don't expect to get a very large crop. There was some winter-killing, and there is some rust, especially in the older beds; also the frost of May 27th killed a good deal of bloom.

Currants will at best be only a light crop, and gooseberries will be about nothing. Raspberries and blackberries are looking fine and will probably give us at least a fair crop.

The twelve apple trees from the State Farm, that were grafted on Pyrus baccata, were received after being delayed several days in transit. They were considerably bruised and were in rather weak condition. They were planted, cut back, etc., according to directions. All have started but one, but I think that will start later.

A second lot of twelve Pyrus baccata trees sent me later were also received somewhat the worse for wear. They were also planted in the trial orchard, but not cut back.

The Wealthy seedlings from Mr. Elliot were received in good condition and have all started to grow. This trial orchard consists of the six Wealthy seedlings, the twenty-four standard apple trees on Pyrus baccata, and twenty-four Wealthy trees grafted on piece root of the French crab. These twenty-four Wealthy trees were dug and heeled in last fall. They are now every one of them making a vigorous start. The trees in this orchard were planted sixteen by twenty feet apart, and the orchard just occupies my entire onion bed.

The three King raspberry plants sent me for trial are growing nicely, but the Beta grapevine failed to start.

June 8, 1905.

MINNESOTA CITY TRIAL STATION.

O. M. LORD, SUPT.

(See frontispiece.)

Strawberries. The crop appears to be in fine condition, the Senator Dunlap especially. Berries have just begun to form.

Red raspberries wintered well and look fine. Currants also look well and will probably be abundant.

Plums. Where the trees bore heavily last year they are not abundant. There will be no crop of Surprise. Wolf, Wyant, Rollingstone are well set with fruit. The trees all blossomed very full, but a continued rain prevented pollenizing.

Apples were later in blooming than the plums and now promise well.

Cherries are well set and now promise a good crop. The Wragg cherry is very full.

June 1, 1905.

Referring to the picture of my place in this number: Plum orchard No. 1 is indistinct in the upper left hand corner, and consists of one row of Surprise, one of Ocheeda, one of Cheney and one of Gaylord. Plum orchard No. 2 is at the left hand and more distinct, and is all Surprise except one row, which is Aitkin. I have had two good crops of Surprise, but no Aitkin. Plum orchard No. 3 is the one directly in front of the house, and contains a good many varieties. It is as large as the other two.

These two pictures were taken during the blossoming, but trees that bore heavily last year have no plums this year. All trees except the De Soto appear well. The De Soto was overloaded last year.

Prof. Sandsten, of Madison University, in a late article, says the idea that plums can be improved by planting a large number together and then selecting the best, is a mistake. The university has been trying that plan for several years without success. The fruit in nearly all cases is not as good as the original.

He recommends that a more systematic plan be tried, by selecting the best and crossing with European and Japan plums. The Americana crosses readily with the Japan and produces some very desirable fruit, but the trees appear to lack in general cultivation. I would not try to discourage any one from experimenting, but there is no well established cross between Americana and European varieties, and it is found to be almost impossible to cross them with marked success.

Plum Orchard No. 2, containing 300 trees, mostly Surprise.

It is doubtful if a plum can be found adapted to all conditions of soil and climate. Nearly all fruits,are found to do better in some places than in others. The Americana has a wider adaptation to country than any other variety, and nearly all forms will readily cross—which accounts for the endless varieties we now have. The tendency seems to be to preserve the natural growth of species, without regard to other considerations.

MONTEVIDEO TRIAL STATION.

LYCURGUS R. MOYER, SUPT.

A nursery at Pittsburgh that prides itself on the botanical accuracy of its catalogue sends out the common Tartarian honeysuckle as Lonicera Xylosteum. The same nursery supplied a common rhubarb, such as we all have in our gardens, in place of the Rheum officinale that we ordered. We hardly expected that all the plants described as hardy at Pittsburgh would prove to be hardy at Montevideo. Several of these Pittsburgh plants failed to survive the winter. Among the survivors is Helianthus laeterfolius, a very showy native sunflower, and Chrysanthemum coccinium, usually known as Pyrethrum roseum. Among the plants that failed to survive the winter are Coreopsis grandiflora, Coreopsis lanceolata, Polygonum milliflorum, Viola cornuta and Shasta daisy.

Polygonum Sieboldi, of Bailey's Cyclopedia, which is generally known to the trade as Polygonum cuspidatum, has been in cultivation at Montevideo about a dozen years and is very effective for producing a tropical looking mass. In good soil with plenty of moisture it grows to a height of some five or six feet. It spreads continually from the roots, but the surplus plants can be easily hoed up.

Another plant that is a little more than able to care for itself is Lychnis alba, or the white campion. It produces white flowers and blooms all summer. The flowers are about an inch in diameter, opening in the evening and closing again the next morning about nine o'clock if the day is bright. It seeds extensively, and the surplus plants are something of a nuisance in the garden but can be readily kept in bounds with the hoe.

The snowballs are badly affected with aphis this spring, and they have also attacked the high bush cranberry nearly as badly. The insects cause the leaves to curl up so that it is difficult to reach them with poison.

A rose sent out by a nursery at Evergreen, Wis., as Rosa Carolina turned out to be Rosa blanda.

The spring was so cold and backward that hybrid roses suffered greatly after being uncovered. Marshall P. Wilder and M. Dickson came through fairly well. M. G. Bruant was badly injured, and General Jacqueminot and the Crimson Rambler were killed back to the ground.

The Trumpet honeysuckle (Lonicera sempervirens) has proved to be hardy with us and is becoming more showy and interesting year by year.

The May Day tree (Prunus padus commutata), which is the earliest shrub to bloom that we have, is showing a little fruit this year. It is reported by the Arnold Arboretum as not fruiting in America. The old-fashioned periwinkle (Vinca minor), called by our mothers myrtle, passed through the winter in good shape and showed this spring a few of its effective blue flowers.

The Americana plums came through the winter in good condition and are setting a good crop of fruit. Aitkin suffered some, either from drought or from the winter, and is in poor condition. This plum is supposed to be a variety of Prunus nigra, the natural range of which is in the far north, in Canada and along our northern borders. It ought to be hardy enough, but perhaps it requires more moisture than we get in western Minnesota.

Apples promise a good crop. Glass Green and a tree of the Hibernal root-killed, and Gideon was greatly damaged in the same way. No. 242 Ames shows some blight. The twelve trees on Pyrus baccata sent out by Prof. Green have been carefully planted, and we are hoping for good results from them. They are all doing well. Mr. Elliot's Wealthy seedlings have also been carefully planted and are doing well. Ten trees, consisting of Wealthy and Lyman's Prolific, have been set on the open prairie in the usual manner, and ten others of the same variety have been set some six inches deeper. These trees are protected by a pine grove on the east. On the north there is a single row of box elders and on the west a single row of young lilac bushes. They ought to furnish a fair test as to the relative value of deep and shallow planting.

Currants and gooseberries promise a large crop and are mostly free from disease. The canes affected by the borer have been cut out and burned.

Raspberries are very promising. At this station the canes of all varieties are laid down in October and covered with earth.

Cherries quite generally succumbed to the rigors of the winter. Wragg and Suda Hardy are gone, and Ostheim shows only one small branch bearing fruit. Bessarabian, which we valued for its ornamental merits but which never bore fruit, has passed away.

The young orchard planted last year on a bluff sloping to the northeast in wild prairie sod has as a whole come through the winter in good condition. The trees were set in large sized holes, and trenches were dug from the holes diagonally up hill so as to convey the rain from the passing summer shower toward the trees, so that they did not suffer much from dry weather. Among these trees Borovinka came through in fine condition, but Charlamoff came through in still better. McMahon was badly injured, and one tree is dead. Longfield and Waif both came through in fair condition. One tree of Peter came through in good condition and the other in poor order. The same report can be made on Lyman's Prolific. One tree of Malinda is doing well, but the other was killed back half way to the ground. Minnesota came through in fine condition, while Okabena suffered somewhat, one tree being killed back to the ground. Anisim came through in fine order, but one tree of Patten's Greening was killed back to the ground, and the other tree is very weak. Forsburg seems to have come through in about the same condition as Patten's Greening.

Among the new material planted at the station this spring is Salix virimalis regalis, Salix Uralensis, Siberian sandthorn and Caragana microphilla.

OWATONNA TRIAL STATION.

THOS. E. CASHMAN, SUPT.

The twelve apple trees budded on Pyrus baccata stock, sent me by Secretary A. W. Latham, came in good condition and were planted in the Owatonna Experiment Station, April 29th, as per his instructions.

One tree of each variety was planted eight inches deeper than they stood in the nursery row, and the balance two inches deeper. Up to date the deep planted trees of Patten's Greening, Charlamoff and Hibernal have grown twice as much as the same varieties planted shallow, while the reverse is true of Duchess and Wealthy.

These trees are planted on a slight southeastern incline and protected on the west and north by rows of evergreens. They are set sixteen feet apart and sixteen feet from large trees, not a disirable location by any means, but the only vacant space on the grounds. The soil is a black loam to the depth of six inches, with a deep clay sub-soil underlying.

Each tree was cut back to two feet and six inches from the ground so the branches which will form the head will start below that point. The trees are kept thoroughly cultivated, and no doubt will make a good growth this season.

A full account of the development of these trees will be given each year, and the practicability of budding on the hardy Pyrus baccata for planting in this section will in time be fully demonstrated.

June 12, 1905.

STATE ORCHARD EXPERIMENT STATION.

This orchard station was established on the State School Farm at Owatonna, by special act of the state legislation in 1887. The late E H. S. Dartt was superintendent of the station from its founding until his death two years since, when Mr. Thomas E. Cashman was appointed to succeed him.

The past winter was very favorable to nursery stock in this locality, consequently all apple trees at the Owatonna Experiment Station came through without injury and bloomed profusely. The early blossoming varieties have set what will make a full crop, but the late ones happened to be in full bloom when frost struck them on the morning of May 25th, and consequently they will bear but little fruit.

At the present writing, blight seems to be quite prevalent among such varieties as Wealthy, Okabena and Ditus Day, while the Duchess and Hibernal are affected in places, and the Patten's Greening is entirely free from it.

When appointed superintendent there were about 1,500 seedlings growing at the Owatonna Station, but I have been cutting out the ones showing little or no promise until now we have but few over 700, and the majority of these are very hardy, thrifty and free from blight.

Within the last eight weeks, we have sprayed those trees three different times and hope to be able to gather some good fruit at the end of the season. I intend to break up and tile-drain that portion of the station that is now too wet for orchard purposes at my own expense this season. This land will be fitted up and planted to experimental stock the coming year.

June 12, 1905.

PLEASANT MOUNDS TRIAL STATION.

J. S. PARKS, SUPT.

Another year's harvest of fruit has commenced with a bountiful crop of strawberries—never better in this vicinity. The Senator Dunlap takes the lead. The Hynson, a local variety, shows well among the old sorts.

There is no insect enemy doing damage to fruit or plant, except that the currant worm has taken the foliage from all the currant plants in this section, leaving a liberal supply of fruit without leaf protection.

Gooseberries and grapes promise a bountiful crop. Raspberries wintered without protection better than usual and are promising.

Apples blossomed bountifully, but have been dropping until a fair crop only can be expected. Some varieties, such as Talman Sweet, Wealthy, Whitney and many others, have been affected by spur blight to such an extent as to lose most of the crop and seriously cripple the growth of the trees. All our Haas and Ben Davis that stood in orchard rows died from effects of scab of two years ago, but a few trees that stood in a thicket of trees came out all right.

Plums bloomed full, but a northeast wind at the time blighted nearly the entire crop, and the plum pocket took the rest.

All garden crops are in fine condition.

Bees are not doing satisfactory work—slow in swarming and very little honey.

WEST CONCORD TRIAL STATION.

FRED COWLES, SUPT.

This spring has been a sea of bloom; every little shrub and tree was full; they seemed to be saying to us "we are doing our best to show the fruits of your labor."

The frost the last of May thinned the apples and plums so we will not have to do much thinning. Plums will not be a very large crop; the plum pocket is showing up quite a good deal.

It looks now as if there would be a large crop of apples. Wealthy does not seem to be as full as many other varieties.

For the past two years we have been troubled with apple scab. We are trying the dust sprayer this year and hope to make a favorable report at winter meeting.

Currants and gooseberries are a good crop and are troubled with the currant worm but very little.

Strawberries are a very promising crop at this writing but will be a little late. If we have plenty of moisture there will be a bountiful crop.

Raspberries came through the winter in fine condition. Older with no winter protection is full of bloom. All varieties promise a large crop.

Flowering shrubs as well as fruit trees are full of bloom. Spirea Van Houtii is again admired by all. Snowballs are at their best at this writing.

Peonies are fast beginning to bloom; Festiva Maxima, the finest white; Rubra, bright crimson, with conspicuous yellow center; Modesta, deep rose; Psyche, outer petals rose, creamy-sulphur center; Marie Leonine, delicate flesh, passing to white when fully expanded. Peonies should be planted more in the Northwest. They are very hardy and are beautiful at this season of the year.

Apple trees budded on Pyrus baccata stock were received and planted according to directions.

June 1, 1905.

WRENSHALL TRIAL STATION.

F. B. MC LERAN, SUPT.

The trial station having been located here last winter, and this being the first summer of its existence, I must necessarily confine this, my first report, to a short description of the work undertaken.

Three years ago fifty trees, apples and plums, were set out here. Of these forty-four are still alive and doing nicely. About six apples and six plums are in blossom this spring for the first time. Currants, gooseberries, strawberries, roses and lilacs were also set by me prior to the location of the trial station. All have done very well.

One hundred and fifty (150) trees have been set this spring. These cover about thirty varieties of apples and twelve varieties of plums, including all those recommended by the State Horticultural Society. Three thousand strawberry plants, covering forty different varieties, have been set out; also six varieties of currants, six of gooseberries and eight of raspberries, red and black. Some Beta grapes have also been set.

At this date all this stock is growing nicely, not having lost a plant so far. I have attempted to graft six different kinds of tame cherries on the wild "Pin," or "Bird," cherry stock. Out of twenty grafts made, I am encouraged to say that about six are growing nicely.

The past winter has been a fairly representative one for this locality, with plenty of snow and severe cold weather most of the time without any winter thaws, the mercury sometimes getting down to 40° below zēro.

This spring has been wet, cold and very late. The apple and plum trees are just in bloom, and the strawberries are only commencing to make buds.

All fruit at the station has withstood the winter very well, strawberries suffering most of all. Peonies and roses have done well for three years without any winter covering except the deep snow.

Several tests and experiments are under way, but an explanation of these would take too much space for this report, and I am obliged to wait until our winter meeting, at which time I hope to be able to give some interesting results.

June 9, 1905.

CONSTITUTION AND BY-LAWS OF THE HORTICULTURAL IMPROVEMENT SOCIETY OF KANDIYOHI COUNTY, MINN.

Article 1.

Name: This society shall be known as the Horticultural Improvement Society of Kandiyohi County.

Article 2.

Purpose: The purpose of this organization is to consider subjects pertaining to horticulture or any other matter of interest to the citizens of the city of Willmar and Kandiyohi county and to do anything to improve the cities, villages, townships and school grounds in Kandiyohi county, or advance their material interests.

Article 3.

Membership: Any person may become a member of this society for the current year by paying to its secretary an annual fee of one dollar, the wives of the members being honorary members with all the rights and privileges of the paid members. The annual membership shall expire at the opening of the annual meeting of this society. This society shall ally itself officially with the Minnesota State Horticultural Society, as provided for in the constitution of the latter association.

Article 4.

Officers: The officers of this society shall consist of a president, a vice-president, a secretary, a treasurer and an executive board of three, of which the president and secretary shall be ex-officio members. All officers and the executive board shall be elected separately and by ballot cast personally by the members and shall hold their office until their successors are elected and qualified. The officers and the executive board elected shall hold their office for a term of one year.

Article 5.

Duties of Officers: The duties of the officers of the society shall in general be the usual duties in similar associations. The president shall preside at all meetings of the society and under the direction of the executive board have the general superintendence of its affairs. He shall sign all orders on the treasurer after the account for the payment of which the order is drawn has been audited by the board.

The secretary shall receive and pay over all moneys collected to the treasurer and keep the records of the society.

The treasurer shall pay out funds only upon the order of the president, countersigned by the secretary.

The executive board shall have general charge of the affairs of the society, reporting its proceedings at each regular meeting of the society, with an annual report at the annual meeting. The ex-executive board at its first meeting after the annual meeting shall elect one of its members chairman.

Article 6.

Program Committee: The president, with the advice of the executive board, shall appoint from time to time a program committee whose duties it shall be to prepare programs for the regular meetings of the society. This committee may be appointed to act for a single meeting or for a definite period, at the discretion of the president.

Article 7.

Meetings: This society shall hold its annual meeting on the first Tuesday after the first Monday in January, at which time the officers shall be elected for the year and the annual reports of the officers made. An annual summer meeting is to be held, time to be fixed by the president each year. A special meeting may be called at any time by the executive board, not less than five days' notice being given to the membership.

Article 8.

Quorum: Seven members of the society shall constitute a quorum.

Article 9.

Amendments: Amendments to the constitution may be enacted by a vote of two-thirds of the members present and voting at any regular meeting.

HORTICULTURE AT ST. JOHN'S UNIVERSITY, COLLEGEVILLE, STEARNS CO., MINN.

The following extract from a letter written to Prof. S. B. Green by Rev. John B. Katzner, connected with the above named institution, will be of interest to our readers:

"Some years ago you kindly sent me the following stock: Russian golden willow, royal willow, Wisconsin weeping willow, hydrangea grandiflora, Douglas spruce, bull pine, Anisim scions, Bessarabian cherry and pyrus baccata. They are all growing. The Russian golden willow is very fine. The Wisconsin weeping willow is not quite hardy, Douglas spruce is very promising and hardy. Bull pine generally good, but suffered some last year, and a few are dead. Anisim is now a fine tree and bore some good apples; Bessarabian cherry is a hardy tree but does not bear. Pyrus baccata is bearing and hardy.

Orchard and apiary at St John's University.

"We have planted many thousand evergreens, namely: Norway spruce, Douglas spruce, Colorado blue spruce (a few), white spruce, balsam fir (a few), European larch, white pine, Norway pine, Austrian pine, jack pine (a few), bull pine, arbor vitae and red cedar. All these are growing well, and many are now fifteen to twenty feet high. The Norway spruce is not quite satisfactory, and the bull pine suffered some. Very promising are the Douglas, blue and white spruces, the white, Norway and Austrian pines and both cedars. Credit for this large planting of evergreens is especially due to Rev. Adrian Smith, of Minneapolis.

"We have planted many deciduous trees, mostly for ornament and shade: linden, soft maple, elm, ash, box elder, poplar, black locust, European mountain ash, catalpa; Russian, golden, royal and Wisconsin weeping willows; black walnut, butternut and many varieties of shrubs. The soft maple, locust, Wisconsin weeping willow and nut trees are not quite satisfactory. They are not taken care of either as they should be.

"Now about my fruit culture. I started out some twelve years ago with the idea to find out just such varieties as would do well in our particular locality, propagating all kinds of which I could get scions, discarding semi-hardy stuff and planting in the orchard only such varieties as promised well in the nursery. . Of these again I will discard some varieties that blight and are not satisfactory in fruit. Of course this takes time, and a farmer could not do this, but I intend to work for the future for our locality, without despising the present returns of the orchard. Don't ask me how many varieties I have tried or I have. I do not know. But some varieties are very promising, especially those recommended by the Minnesota Horticultural Society, with a few others. I might mention Duchess, Hibernal, Wolf River, Wealthy, Charlamoff, Peerless, University with others not yet in bearing; of crabs Briar Sweet,

A corner in forest plantation at St. John's University.

Whitney, Shield (very good); Virginia, fine tree but not bearing much; General Grant, Greenwood and a few more.

"I have a cherry orchard of some eighty trees; they were bearing a few cherries last year. I got them mostly from Wisconsin and some from Col. Schmitt of Springfield, Minn. I have the Homer, Wraag and Ostheim; these suffered last winter.

"I have some thirty varieties of plums. Some are very good and satisfactory; other are not, although recommended. You must take into consideration that all my trees in the orchard are planted in sod, and they do not grow as well as if cultivated, nor do some varieties give as nice fruit. I mulch my trees, but cannot cultivate, for I am no farmer, nor will our people ever think of cultivating fruit trees. Besides this the land I have at my disposal is rather poor. Hence, taking these points into consideration, I will in course of time only select such varieties as do comparatively well under such adverse conditions."

Screen of pines adjoining gymnasium at St. John's University.

SEED FRUIT GROWING IN THE RED RIVER VALLEY.

WYMAN ELLIOT, MINNEAPOLIS.

(Read before the Red River Valley Horticultural Society.)

I desire to develop this subject under several headings.

Environment—a condition natural or created, by which living forms are influenced or modified in their growth or development. The improvement of prairie environment is when you plant a seed, cutting or small tree from which a large tree will grow; you plant another, and you further improve the environment; plant a thousand trees, and you improve the environment many fold. It is said two swallows do not make spring, but when you see whole flocks of them you know spring has come and the cold blasts of winter have departed. When we see a home with not a tree in sight we shiver, but when we see another nestled behind a good substantial windbreak we think that man, wife and family and every living creature on the place has an enjoyable environment and if, perchance, he has a garden, the trees, vegetables and flowers thrive, grow luxuriantly and give good returns, each of its kind.

If the man with the shivery home has an idea come to him after attending this horticultural meeting, he will plant some trees, seeds or cuttings, and perhaps his ambition may lead him to plant a few fruit trees or small fruits. Just stop and think what a struggle those fruit trees and small fruits will have for existence with the cold blasts of winter, the sirocco south winds of summer and the uncongenial prairie conditions with which to contend.

The man of thrift and foresight who has the substantial windbreak, which protects and creates a congenial environment, after attending this horticultural meeting, like his slothful neighbor, thinks he can give added comfort and pleasure to his family by planting out a few fruit trees, some strawberries, raspberries or a row or two of currants and gooseberries, perhaps some grapes; and the good wife also pleads for just a little space for flowers, annuals and herbaceous perennials, a lilac and honeysuckle, yes! and a hardy rose or two. Now, do you think these trees, flowers and shrubs are likely to make a sickly, unhealthy growth? No, they have fallen into good, intelligent hands that have up-to-date ideas, that have created a congenial environment and will care for and cultivate whatever they place within this charmed circle.

Plant breeding is the process of producing new varieties of the same species of fruit tree, small fruit, grain, vegetable or flower plants, descended from a similar ancestor, by cross-fertilization with pollen from the bloom of some other plant akin by nature, with inherent qualities dissimilar or alike, thereby blending the characteristic elements of each in growth and quality in a new form. Prof. Wm. Saunders, Ontario, Canada, says: "In a general way, crosses in fruit inherit their constitution largely from the pistillate or female parent; while the quality and flavor of the fruit is much influenced by the other sex." If this rule as stated by Prof. Saunders holds true, the amateur plant breeder has, in some degree, a key to greater success in the future.

You have, by this time, discovered I am not keeping close to the subject given me. The old adage is, "First make your cage, then catch your bird." So I, by way of preliminary, have started with environment, then given a short definition of plant breeding. If you will pardon me I desire to call your attention to a few of the forest or shade trees adapted to use for windbreaks, which are easily propagated from seed. The soft maple and white elm ripen their seed in May and grow very readily when planted soon after they ripen in moist soil with two or three inches of covering. The green ash and box elder ripen their seed in September and are usually planted in the fall and some protection given, by mulching, to keep them from mice, squirrels and washing out during fall, winter and spring.

Growing fruit trees, vines and small fruits from seed is a much more complicated process, and greater care must be exercised in saving and preparing this seed that it shall not be dried too much before sowing. Apple and plum seed, as soon as taken from the fruit, should be only partially dried, then placed in some close receptacle, mixed with damp sand or soil to cover them from the light and air, and if not sown in the fall this receptacle should be placed where the seed will freeze and thaw several times and then remain frozen or very cool till time of sowing in spring, to insure best results.

The same rule prevails with seed of the currant, raspberry, strawberry and gooseberry, only they do not need freezing to insure germination.

There are some kinds of seed, as mountain ash, hawthorn, high bush cranberry and nearly all the nut seeds, that require special manipulation, or they will remain in the ground two years. I have had apple and plum seed that did not grow till the second year.

The care and sowing of seed is only a small part of the work in producing new fruits; the work following is where most cultivators fail, very simple if only continual and thorough cultivation is given.

Perhaps I had better describe the proper way to prepare the soil, sow the seed and cultivate the plants through the first year, the most critical time in their existence. The ground for a good seed bed should be ploughed or spaded six to ten inches deep (the latter preferable) when the soil is dry enough to crumble into small particles; then harrowed, or, as the western man would say, dragged, very fine and level. Stretch a line where seed is to be sown, use a fine toothed steel rake for opening the trench or row, one to two inches deep, depending on the size of seed sown, drawing away the soil just enough to leave it for covering the seed when sown. After covering, tamp the soil over the seed with the head of the rake, enough to make it firm. When sowing the seed mix a small quantity of radish seed with it, and this will come up before the fruit seed makes its appearance above ground. When the radishes show the rows, use the garden rake to break the surface of the soil and kill small weeds, growing in the row, thus saving much time in hoeing and hand weeding afterwards. Later cultivate between the rows and stir or loosen the soil near the plants with the garden rake or hoe each week, or oftener if rain intervenes between hoeings. All weeds in the row, large enough to be seen, should be pulled at once, that the plants may have full possession of the ground. Do not attempt to grow a crop of weeds and cultivated plants at the tame time, for if you do the weeds are sure to be the best crop and the plants will be a failure or only a partial success.

The time at which the young and tender seedlings appear above the surface of the ground is a very critical period. For some reason, if certain weather conditions prevail the young seedlings will damp off and die (dusting with air-slacked lime or dry wood ashes is, to some extent, a preventive). The cut worms also come in for their share of the new and tender plants, which may be guarded against by preparing a tempting bait made from one pound of paris green and one hundred pounds of wheat bran mixed, and wet with sweetened water enough to make the mixture have a lively, crawley appearance. This strewn or sifted alongside of the plants will nearly always destroy them.

Hoeing and cultivating should be kept up till about August twentieth, thus giving ample time for the plants to harden and ripen up before winter. Just before the ground freezes bend the young seedlings over and cover four inches deep with dirt, for winter protection, and if sweeping winds are likely to blow off the covering of dirt put on a good heavy mulch of coarse manure. Forest seedlings do not necessarily need this covering as they are perfectly hardy, but they will be benefited by such protection and make a better growth the following year.

As soon as the frost is out of the ground the following spring, or about the middle of April, carefully uncover the plants and commence cultivation at once.

Did any of you ever think of the latent possibilities of the seeds from a beautiful, high colored, fine quality apple. Each seed represents an embryo fruit tree, no two of which will produce trees bearing fruit exactly alike, and it is possible for any one of you to plant and by giving the proper environment, cultivation and care, to change the growth of tree, quality and quantity of fruit.

In selecting seeds of fruits for planting in this portion of the state, use none but the hardiest kinds and, if possible, of home growth or from like latitudes. In Bailey's "Evolution of Our Native Fruits," page 457, I find the following: "There must be a best variety for every particular use and locality and soil. If a given variety does not satisfy the ideal of the experimenter, that fact is no proof that it may not be a positive acquisition in some other place or for some other purpose. We shall always need to test varieties to be sure, and the testing must be more exact and personal the more critical we become in our demands. It is out of the many new varieties that we shall find the particular ones which we desire.

"The first attempt, in impressing new species into cultivation, should be to secure a type which will thrive in a given region. The first consideration in breeding apples or plums for the dry plains region, for example, is to secure a type which will endure the climate, the long droughts, the severe winters, the hot summers. This fundamental desideratum may be expected to be found in the indigenous plums rather than in the domesticated types."

With the apple it is quite different, as there are no natural species which are indigenous to this part of our state. Those best qualified to judge believe we already have varieties that will succeed here, if not, that we shall, by saving seed from the hardiest known kinds, produce those adapted to all the climatic conditions of this region.

In closing these rambling and disjointed thoughts I would leave with you this message. Begin your home upon the prairie by planting windbreaks to create environment and being careful to plant them far enough from your house and farm buildings to leave ample space for orchard, vegetable and flower garden. And remember, this garden should always be enclosed with a stout, substantial fence to properly protect it from damage by all kinds of stock and poultry.

APPLE SEEDLINGS.

D. F. AKIN, FARMINGTON.

In treating on the subject of seedlings, the thoughtful student of nature finds it so vast and extensive, so important and interesting, so varied and necessary, so universal and grand, that he either divides it into different heads, as fruits, flowers, grains, grasses, shrubs and forests, or leaves it to one more devoted to each. However interesting it may be to produce a new and more beautiful rose, petunia, phlox or any other ornamental shrub, plant or vine, which can be accomplished only by raising them from the seed, it is far more interesting to the writer of this to produce some new and more valuable variety of the apple, which is the most universally eaten fruit known, and has now many choice varieties. A German gentleman told one of our horticulturists at the St. Louis fair that in his country apples often sold for fifty cents apiece. No other fruit of its size can compare with it in price, no other fruit

Mr. D. F. Akin.

can compare with it in healthfulness, no other can take its place in its domestic use. It needs no cultivation of taste to make it palatable—a child before it is able to assimilate solid food seems to naturally enjoy the sprightly acid of the apple.

Then why not raise seedling apples till a variety is obtained that is adapted to every variety of soil and climate. It has been proven by experience that seedlings adapt themselves to soil and climate where they are planted far more readily than do varieties transplanted from some other locality. Every variety seems to have a choice location where it thrives the best and produces the best fruit, although some kinds have a greater range of usefulness than others. The Baldwin would choose the rocky hills of New Hampshire; the Spitzenburg and Seek-no-Further take Western New York; the Greening and Pound Sweet, Vermont; Ben Davis, Missouri, and thus there is a variety for every locality.

To grow seedlings successfully many considerations should be taken into account in selecting the seed, and it is important by what variety it probably had been fertilized. If you wish to raise winter apples you certainly would not select seed from summer apples that had been fertilized by summer apples. Just as soon expect to raise bananas from buffalo berries, or sweet potatoes from Indian turnips. No, you would be more considerate; you would select seed from a winter variety, one that had been fertilized by a winter variety. If you want red apples, you would select from red varieties; if you wish large ones, you would select from large kinds—although you can hardly expect an exact reproduction of the sort you plant the seed of, as the variations will be numerous.

Now you have selected your seed, the next consideration is the place for planting; this in my opinion is the place where you want your orchard to stand. I consider this growing the trees where you want the orchard to be is one of the greatest steps toward success of all the important things to do in the whole category. Then the roots take their natural course, the bark on the various sides of the tree adapts itself to the requirements of its existence. The branches you can control by a judicious use of the knife.

The depth to plant the seed is about one inch, but first remember your hens are very fond of apple seed and appear to imagine they must have them if possible. So protect the seed from the hens.

Before planting the seed dig a concave hole, eight inches deep and two feet in diameter, where you want your trees to stand, and into each one of these holes plant from six to eight seeds, one inch deep. Cover the soil with a black cloth till the seed are sprouted; then remove the cloth and cover with screen wire high enough to not touch the trees. The trees should be far enough apart so they can grow till they produce fruit, when the least desirable can be removed, set out somewhere else and grafted to choice varieties.

The holes where the seed are planted should be gradually filled till level with the outside ground, so that when your trees are eight years old you have trees with their crowns eight inches deep banked by earth to keep them from being swayed by the wind or leaned over by the weight of their fruit.

Not many years ago when a person spoke of a seedling apple the hearers at once thought of as poor a specimen of the fruit as they ever tasted, thinking the speaker was referring to one of that sort; but now this is all changed, so the name seedling is not the synonym of the least desirable of the great variety of choice apples but rather of the best and choicest. The name of the person who originates a choice seedling apple will go into history with its spread of popularity. Many choice varieties of seedling apples have been produced for the purpose of getting a variety that would thrive in a certain locality, and with the generous award offered by our state horticultural society a new incentive and influence has been given for the production of choice seedling apples. So it is not unsafe to expect a greater number to appear in the near future.

Just imagine the wave for seedling apples set in motion by Minnesota's show of seedling apples at Boston and now again at St. Louis. Many of the choice varieties have been produced by chance, as it were, without care or forethought, the apples eaten and the refuse with the seeds thrown away by the roadside or in the kitchen yard, where the seeds have sprouted and the young trees were compelled to take their chances with the grass, weeds and other cumberers of the soil till they showed fruit worthy of care and cultivation.

With these facts to aid us and invite to the care and culture of seedling apples, the day is not far distant when every locality will have its supply of apples. Let us all try for the prize.

PROFITABLE PLUM TREES.—Mr. Eric Anderson, of Lake Park, Minn., who is taking a large interest in growing improved varieties of the native plum, in speaking of the success of his plum crop last year says, "My four-year Surprise plums netted $3 00 per tree; and five-year Wyants also $3.00 per tree; Forest Garden, $2.50; Surprise, Admiral Dewey and Beatty are the finest varieties for cooking of all I have."

LESSONS FROM OBSERVATION AND EXPERIENCE.

DAVID SECOR, WINNEBAGO CITY.

It is not the object of this paper to treat all phases of the subject of horticulture and forestry, but rather to speak more particularly of that part that relates to farm life and the village home.

It has been said that experience is a dear schoolmaster, and those of us who have labored along horticultural lines for forty or fifty years in Minnesota or northern Iowa can verify the truthfulness of this statement. When the first efforts at fruit culture were being made in the new and partially developed part of the country, there was no lamp of experience to guide our efforts, and we were groping in the dark. That mistakes were made, failures encountered, and costly experiments had, we must in candor admit. The first efforts at fruit culture were made largely by selecting and planting varieties that were successfully grown in the states of our nativity; or where we had formerly lived. It was quite natural that we should do this at that early day, as none had received lessons from the school of experience, and all had imperfect knowledge of varieties adapted to our climatic conditions.

The fact that the wild crab apples, plums, currants, gooseberries, grapes, strawberries and raspberries flourished in their native state indicated that tame fruits might succeed, but in the efforts to raise tame fruits the most enthusiastic horticulturists of that early day are the ones who had the most costly lessons of experience, but out of the partial failures, costly though they were, profiting by the lessons learned, and with perseverance commendable, success has been attained, and the fact has been demonstrated that Minnesota can raise fruits of high quality sufficient to supply the commercial needs of the state. The citizens at large owe a debt of gratitude to the enterprising pioneer horticulturists for the degree of success attained, and for the experimental work now being carried on.

The reports of the annual meeting of this society are of great value to any person now engaged, or who expects to engage, in fruit raising or tree planting. If recommendations therein made of the kinds of trees, shrubs and plants worthy of cultivation are followed, much money will be saved to the people of the state and costly lessons of experience avoided. No person setting out an orchard, planting forest trees, ornamental trees and shrubs, or raising the small fruits, can afford to miss the benefits to be derived from the lessons of experience taught in the reports of this society. One dollar a year invested in membership fee, which entitles the member to the monthly and annual reports, and a careful study of these reports, cannot fail of good results, and frequently in saving many dollars to the investor.

The improvements made along the lines of horticulture and forestry, as well as the developments along other lines, in Minnesota in the last fifty years, seem to be almost marvelous, so great has been the progress. The treeless prairies have been brought under cultivation by the enterprising and frugal husbandmen; trees have been planted for protection from the wintry blasts and for shade, and comfortable buildings erected within the windbreak of planted trees. As a result of these efforts are seen many comfortable and happy homes with ample protection from the cold winds of winter. Many farmers now have an abundance of fuel from trees of their own planting and are independent of coal strikes and fuel combines. In many of these planted groves are trees three feet in diameter, large enough for good saw logs and suitable for the manufacture of lumber for commercial purposes. Thriving villages and cities have been built, affording markets for the products of the farm. Shade and ornamental trees and shrubs have been planted along the streets and on the lots, which add both beauty and utility to the effect. In Winnebago City, where the writer resides, shade trees planted along the streets thirty and thirty-five years ago measure two and three feet in diameter. Maple, box elder, elm, ash and other varieties are large enough for saw logs.

There is a tendency of late years to replace the cottonwood, box elder and willow trees with more valuable and desirable varieties. This is worthy of commendation. In the early settlement of the country there was more excuse for planting the cottonwood, willow and box elder than now. Other varieties of trees, more valuable and beautiful, can easily be had now for planting. Some of them grow nearly as rapidly as the cottonwood, and are more valuable and desirable when grown.

The question of what to plant, where to plant and how to plant is one worthy of careful consideration, and includes the selection of varieties adapted to location and soil conditions. This is quite important. Even the cottonwood tree will not thrive well on thin, gravel soil on a knoll. Some varieties succeed best on sandy loam or alluvial soil. On the village lot the selection of varieties to plant is limited, owing to the small area of ground, but on the farm a sufficient amount of ground should be used for tree culture to include all the native varieties adapted to the soil conditions. The elms, ash, linden, black walnut, butternut, black wild cherry, oaks, maples and native evergreens are valuable timber trees and are worthy of more extensive cultivation. Nut bearing trees, such as black walnut and butternut, succeed best and make much more rapid growth from nuts planted where the tree is to stand, as transplanted trees of the nut variety are usually of slow growth. Under favorable conditions trees grown from the nuts begin to bear in from seven to ten years, and attain a height of twenty to twenty-five feet and a diameter of six inches.

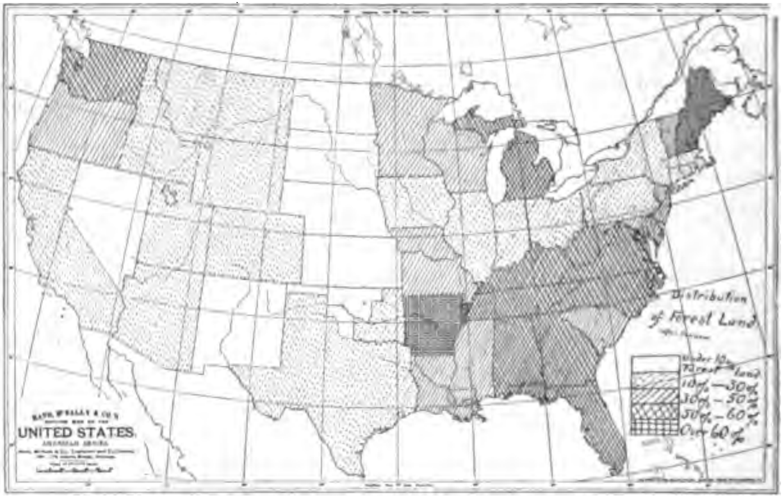
In planting windbreaks and forest trees many farmers are too saving of their land and bunch the trees too close around the buildings, not leaving sufficient room about the house to admit of decoration in planting ornamental trees and shrubs. On a farm of one hundred and sixty acres at least ten acres should be used for trees, garden, orchard, buildings, stock yards and lawn, and the tract surrounded by a good windbreak. This permits the placing of buildings far enough apart to reduce the fire risk to the minimum. The barn should not be less than one hundred feet from the house, and two hundred feet would be better. The barn and out-buildings should be far enough apart to prevent the danger of combustion if one should burn. Within the enclosure there is room for shade and ornamental trees. A nice lawn, with flower beds, ornamental trees and shrubs should surround the house and add beauty to the surroundings.

The writer was much impressed recently by the ocular evidence of the rapid settlement of a prairie country in a visit to Buffalo Center, in Winnebago county, Iowa. The village has a population of about one thousand, and was started on a treeless prairie some fifteen years ago. On the site where the town lies one could stand less than twenty-five years ago and could not see in either direction any evidence of civilization whatever; neither tree, building nor sign of any improvements: On September 27th, 28th and 29th, 1904, was held the fifth annual agricultural fair, which the writer attended, and the exhibit was very creditable, and a surprise to one who looked on the broad, undulating prairies only a few years before. The display of fruits, apples, plums and grapes was good. There was a fine exhibit of vegetables, seeds and grains, and a creditable display of live stock. The town and surrounding country show evidence of progress and prosperity. Nice groves have been planted; comfortable and commodious farm residences and barns have been erected; telephone and free delivery mail routes established; thrifty young orchards planted, and bearing fruit. The transformation made in a few years in the settlement and development of the country seems almost marvelous. These evidences of advancement should instil in us new energy and lead us to act well our part in the progress of the twentieth century.

SOME PRAIRIE PROBLEMS IN ORCHARDS.

PROF. A. T. ERWIN, AMES, IA.

The remark was recently made by a prominent horticulturist that "The great inland empire of the Middle West must work out for itself a pomology distinctly its own." This statement is pregnant in its suggestiveness. In the Southwest, and especially in the East, this work was accomplished years ago. Then why is it necessary to do it over again? Is our environment peculiar, and are our conditions different? The answer to this question, drawn both from a careful study of prairie conditions, and also from the light of past experience, is emphatically, yes.

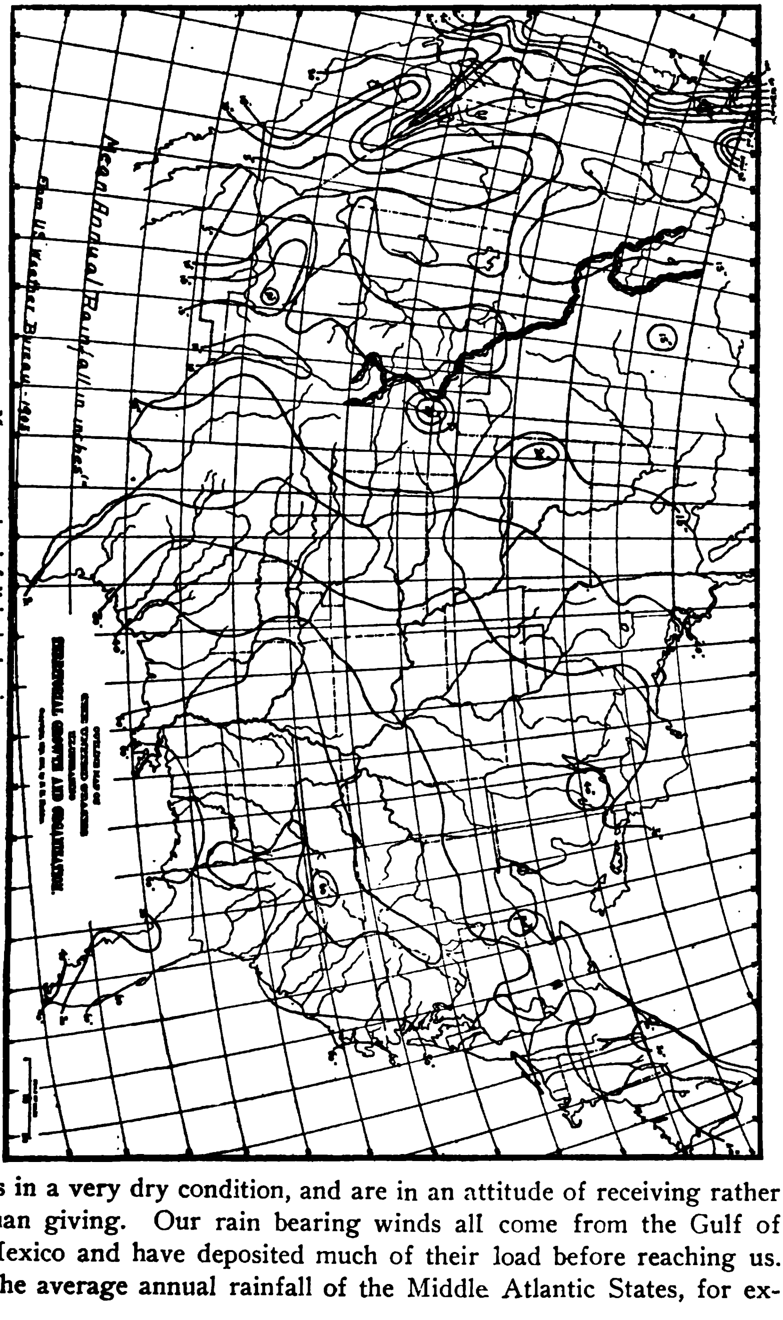


Distribution of forest land in the United States.

Granting this to be true, it may then be interesting to inquire as to what are the factors that enter into the problems of the prairie planter, and in what respects are they peculiar. It is a much discussed question as to which exerts the greater influence, heredity or environment. Be this as it may, it is certain that in any case environment plays a very large part in the life of the plant, and the entire attention of the grower is concerned with the various problems it presents. Environment concerns itself with two factors, climate and food-supply. Climatically then, what are our conditions?

One of the most important factors, from the standpoint of climate in its relation to plant-growth, is that of rain-fall. Water plays a very important part in plant-development. A soft maple, for example, when felled in the dormant season of winter, by weight is over eighty-five per cent water, and even in case of our hard wooded trees, such as the black oak, it is sixty per cent water.

Our moisture supply borders closely on that of the semi-arid region in character. The towering Rockies rob the moisture laden winds of the West, hence the air currents from that direction reach



Mean annual rainfall in inches in 1903.

us in a very dry condition, and are in an attitude of receiving rather than giving. Our rain bearing winds all come from the Gulf of Mexico and have deposited much of their load before reaching us. The average annual rainfall of the Middle Atlantic States, for example, is from forty to fifty inches; for the upper half of California, sixty inches; central Iowa, thirty-five inches; while between the Missouri River and the Rockies it drops to ten inches or less.

Our conditions are not such as to render irrigation necessary—our rainfall is ample to support tree growth, provided our moisture supply is properly conserved.

A more serious problem confronts us from our prairie winds. Our winter winds after traveling for hundreds of miles over the arid West reach us in a dry, parched condition and are moisture hungry. The level prairie offers but little to retard their progress or deflect them upward, hence they pass on unmolested and rob as they go. The shriveled condition of the twigs in the springtime is a mute witness to this fact.

In this connection the necessity of planting evergreen shelter-belts to retard the winds in their course, and also to deflect them upward is apparent.

Our third problem arises from the fact that we live in the Valley of the Nile, so to speak, and we are blest with the fattest of American soils, and even overly blest from the fruit grower's standpoint. Our black prairie soil, which has become so fruitful as the land of corn and swine, is by no means equally satisfactory for fruit trees. The best corn land is not the best soil for the orchard. The kind of soil that produces a slow growth, a hard, compact cell structure, one texture and with good keeping qualities, is what the ordinary farmer would call a poor clay soil.

In some sections there is much diversity of opinion as to the best slope to plant on. With us the problem often is to find any kind of a slope, and often the grower is thankful to secure even the suggestion of one, regardless of its direction.

To briefly summarize then, our limited rainfall, the desiccation from dry winds of winter encouraged by an unbroken topography, and an unusually fertile soil which tends to produce a succulent wood growth which may be subject to winter injury, and a similar growth in the fruit, which is not conducive to the highest keeping qualities, are some of our most important problems.

I do not wish to leave the impression, however, that we live beyond the apple belt, or that our difficulties are unsurmountable. We are slowly mounting the ladder "round by round," and our growers are gradually becoming masters of the situation. Like the American citizenship, we have gathered from every clime. Out of the large number so tried, we have secured a few things of merit, and from native born seedlings we expect a great deal more.

In this connection I wish to express our debt of gratitude to our lamented co-worker, Mr. Peter M. Gideon, for the Wealthy apple. This variety stands at the very top of our list, and we have all shared in the fruits of his labor. We also feel the deepest interest in the work the Minnesota State Horticultural Society is doing to encourage and stimulate further effort in the line of seedling production. May it ever prosper and multiply in good works!

Secretary's Corner.

OUR REPRESENTATIVE ON THE FOREST RESERVE BOARD,—Mr. M. M. Williams, of Little Falls, Minn., who has served one term as representative of this society on the Forest Reserve Board, has been tendered a re-appointment upon this board, which has been accepted. Mr. Williams is a life member of our society.

QUESTION AS TO TRANSCENDENT CRAB CIDER.—"What is the best way to make and keep cider from Transcendent crab? Some say that it needs sugar and others that water should be added. Perhaps both are right." Will any of our readers who have had success in this way please recount their experience briefly and communicate it to the Secretary's Corner. Also, will Transcendent crab cider make good vinegar?

MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.—The biennial meeting of this important national association will convene in Kansas City, Aug. 8th to 10th next. The decision of the committee to hold the meeting at this place was largely influenced by the desire of the horticulturists of the west to bring it nearer home, and under these circumstances it would seem that several representatives of Minnesota horticulture should plan to be present. The secretary would like to know of any members who expect to attend this meeting, and arrangements can be made to provide the necessary credentials.

PETER BETTER THAN WEALTHY.—"I see by the last magazine the meeting had a discussion on the Peter and Wealthy apple and tree. I consider there is a marked difference in the two trees and the fruit. The Peter is better in every respect, a much better apple, to eat in the fall, as it is not quite so sharp tasted. I sold Henry Anderson of this place Peter apples last season on Sept. 25, and on April 23 I helped eat them, and they were in good condition, except a little withered. They only had one that showed any signs of rotting. They all bear younger with me than Wealthy and are darker red." T. C. Smith, Lakeville.

RED CEDAR SEED.—Few people understand the importance of having seed from trees that are acclimated. For instance, Prof. Budd tells us that when he was at St. Petersburg they referred to the box elder as not being hardy. He found that they had obtained their stock of it from St. Louis. In the case of the red cedar, it is found that where this tree is grown from southern seed it is oftentimes quite tender in Minnesota; on the other hand, plants from our native trees are about as hardy as anything we have. There is just now quite a shortage of red cedar seed from this northern grown stock, and if any of our Minnesota, Wisconsin or Dakota friends have red cedar trees that are bearing seed, the University of Minnesota Experiment Station will be glad to correspond with them with a view to purchasing it. Address Prof. S. B. Green, St. Anthony Park, Minn.

DEATH OF MARSHALL ROBINSON.—Marshall Robinson, who for many years was a member of our society, died at his residence at 640 19th St., E., Minneapolis, on the morning of June 15th, at the age of seventy-five years. He came to Minnesota in 1857 and for a number of years was at Glencoe connected with the Glencoe "Register." In '63 he recruited a company and was on the frontier during the suppression of the Indian outbreak which took place at that time. Mr. Robinson was a man of fine literary tastes and author of a number of biographies and travel sketches. While not personally in connection with horticultural work, so far as the writer knows, he was very much interested in the society and for many years, with Mrs. Robinson, was quite a regular attendant at our meetings. Mr. Robinson was a brother-in-law of the late John H. Stevens, whose memory will ever be green in the thought of all the old time members of our society.

SPECIAL PREMIUM FOR PLUM SEEDLING, $100.

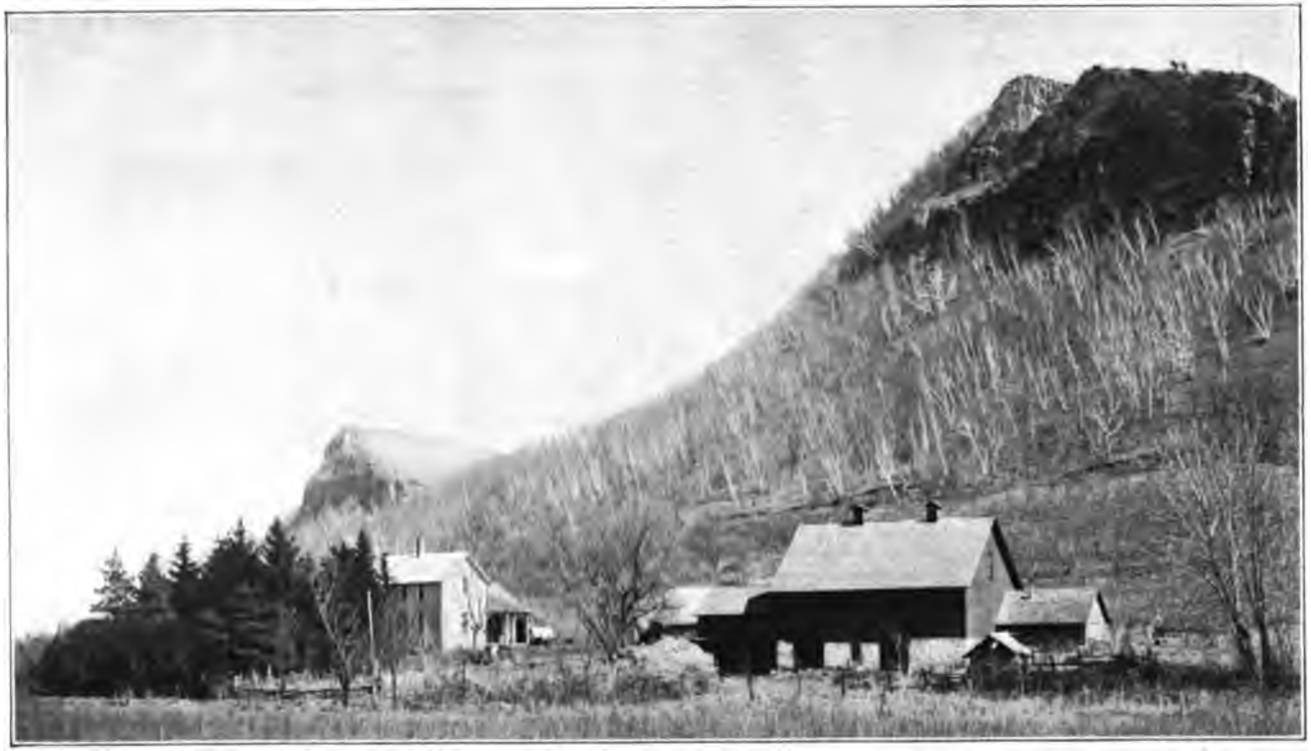
Mr. Chas. M. Loring of Minneapolis is offering through the executive board of this society a special premium of $100.00 for a new seedling plum, and the board has, with his approval, decided upon the description of the plum which will be entitled to receive this premium. It is as follows:

1. Color, reddish.
2. Size, averaging 1¼ inches in diameter.
3. Qualitv, as sweet as Ocheeda.
4. Pulp, firm when ripe.
5. Peeling easily when mature.
6. Without astringency when cooked.
7. Fruit not late in ripening.
8. Tree an early, regular and annual bearer.
9. Tree a good grower, productive and hardy in Minnesota.

Competitors for this premium may make entries at any time with the secretary of this society and full directions will be given as to method of submitting fruit for examination.

THESE SENT NEW MEMBERS.—The following is a list of those sending in new members to the society and the members sent from Jan. 21 to June 28.

C. H. Hansen, Minneapolis,	1
G. H. Westman, Sandstone,	1
T. K. Dahle, Browndale,	1
Walter Latta, Crookston,	1
A. W. Barker, Goodrich, N. D.	6
David Secor, Winnebago City,	2
Mrs. J. Stager, Sauk Rapids,	1
Hans Nelson, Fergus Falls,	1
J. P. Jensen, Albert Lea,	1
Anton Jenson, McIntosh,	4
C. C. Hunter, Minneapolis,	1
R. H. Pendergast, Duluth,	1
T. T. Bacheller, Minneapolis,	3
Mrs. M. A. Rohan, Minneapolis,	1
H. H. Augstad, Pelican Rapids,	1
Chas A. Anderson, Litchfield,	1
L. M. Fowler, Waterville,	1
Chas. E. Chrisman, Ortonville,	1
D. Krier, Farmer, S. D.,	1
Fairmont Nursery Co., Fairmont,	1
Hans Hjemstad, Balaton,	1
S. H. McAdams, Swea City,	1
John Day Smith, Minneapolis,	1
Walter S. Dynes, Owatonna,	2
R. A. Wright, Excelsior,	1
W. H. Eddy, Howard Lake,	2
W. L. Parker, Farmington,	1
S B. Green, St. Anthony Park,	1
J. Cuffel, Lake City,	1
Irvine Innis, Aitkin,	1
Ditus Day, Aurora, Iowa,	1
Frank Mesenberg, St. Cloud,	2
H. Klauser, Litchfield,	7
Fr. Moeser, St. Louis Park,	6
C. J. Manner, Anamoose, N. D.,	1
Fr. Yahnke, Farmer's Institute, Winona	75
T. E. Perkins, Red Wing,	1
Wm. A. Buggs, Farmer's Inst., Stockton,	193
L. P. Highmark, West Duluth	2
Geo. W. Hart, Lakewood, N. D.,	1
F. M Crosby, Hastings,	2
Otto Kankel, Fertile,	17
Fred Cowles, West Concord,	1
C. O. Peterson, Afton,	1
W. S Higbie, Eden Prairie,	1
Edwin Bonde, Cottonwood,	5
Victor Neil, Minneapolis,	1
Iver Nelson, Cottonwood,	1
Jas. F. Hanson, Fertile,	1
A. B. Franklin, Minneapolis,	1
A. G. Long, Excelsior,	2
E H. Thompson, Excelsior,	1
E. M. Ericson, Hector,	1
Jewell Nursery Co., Lake City	32
Fred Mohl, Adrian,	10
H. E. Hoard, Montevideo,	1
A. L. Brevig, Starbuck,	2
F. B. McLeran, Wrenshall,	3
G. O. Tuve, Fergus Falls,	1
Ole Skinnemoen, Wendell,	1
I. E Richardson, New Brighton,	1
F. W Bigelow, Minneapolis,	5
J. Bisbee, Madelia,	24
Ole J. Hagen, Hendrum,	1
J. V. Wichler, Owatonna,	3
W. W. Hartt, Delavan,	1
J. J. Madden, Adrian,	1
N. C. Kaer, Minneapolis,	2
J. M. Underwood, Lake City,	1
J. K. Miller, Sauk Rapids,	1
C. B. Peterson, Litchfield,	1
G. W. Strand, Taylors Falls,	14
A. H. Enerson, Lamberton,	1
J. F. Benjamin, Hutchinson,	5
L. Johannessohn, Beltrami,	3
D. N. Flaten, Northfield,	1
J. W. G. Dunn, St. Paul,	1
P. A. Campbell, Minneapolis,	1
Johnny Jacobson, Franklin,	1
John Turnbull, La Crescent,	1
Soren A Korsmo, Franklin,	1
Peter Lundblad, Hopkins,	1
Sam Moede, Buffalo Lake,	1
LeRoy Cady, St. Anthony Park,	4
F. E. Scholtzko, Springfield,	1
Chas. Lamb, Baker,	1
N. J. Aanes, Clarkfield,	2
T. E. Cashman, Owatonna,	1
T. E. Chesney, Minneapolis,	1
J. R. Cummins, Eden Prairie,	1
J. R. Swain, Minneapolis,	4
Geo. S. Neison, Foxleigh, Assa.,	1
G. A. Nelson, Tetonka, Iowa,	2
D. C. Webster, LaCrescent,	1



RESIDENCE OF MR. FRANK YAHNKE, WINONA.

His fruit farm lies mainly above the buildings shown and below the line of natural forest appearing on the bluffside, extending to the right and left beyond the points shown in the view. It is a wider area than it appears to be in this picture.

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ORCHARD FRUITS IN THE MISSISSIPPI VALLEY IN JULY.

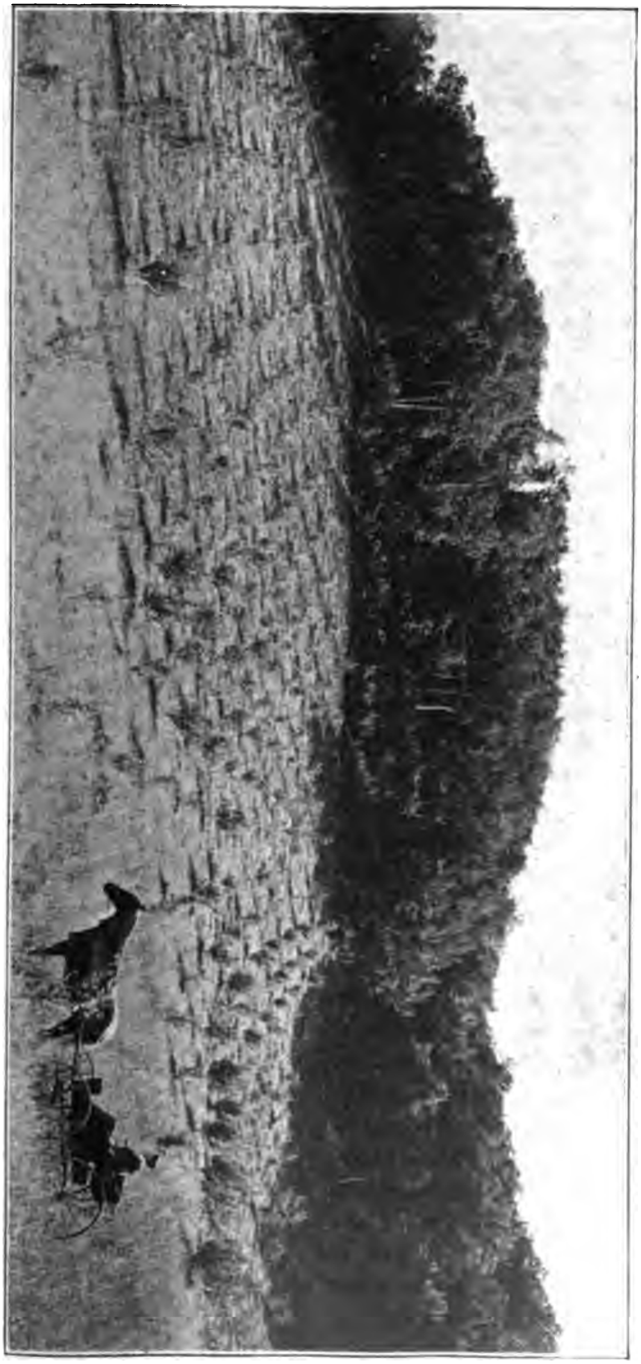
A. W. LATHAM, SECRETARY.

Mr. Wyman Elliot and the writer of this took a little excursion along the Mississippi river as far south as Winona, leaving Minneapolis on the morning of Wednesday, July 5th. Mr. J. M. Underwood made a third in our party, picking him up at Lake City, in our visit at Winona, which point we reached a little before noon on the day mentioned. Mr. Frank Yahnke met us at the Winona depot and took us out to his place, a distance of about four miles, and this was really the objective point of our visit, as the special purpose of this trip was to visit Mr. Yahnke's cherry orchards when in full fruitage. We were fortunate in getting there at the right time, as we found the trees well loaded with nearly ripe fruit, the harvesting of which was just beginning. Mr. Yahnke's farm is truly a fruit farm, not being adapted to general farm operations, as it is largely located along the north and east sides of one of the bluffs that range themselves parallel to the river for hundreds of miles along its course. Commencing a little above the level of the valley, the gardens and orchards of this successful fruit farm cover the hill-side up to a point beyond which, on account of the steepness of its slope, it cannot well be cultivated. Indeed, a considerable portion of the orchard and berry patches well up the hill-side are reached by hand cultivation only.

Beginning in this locality forty years ago as a vegetable gardener, Mr. Yahnke has gradually worked into fruits until now that, and growing some nursery stock, is practically his full occupation during the summer. In the winter, as our readers know, he talks horticulture from the platform of the farmers' institutes throughout the state.

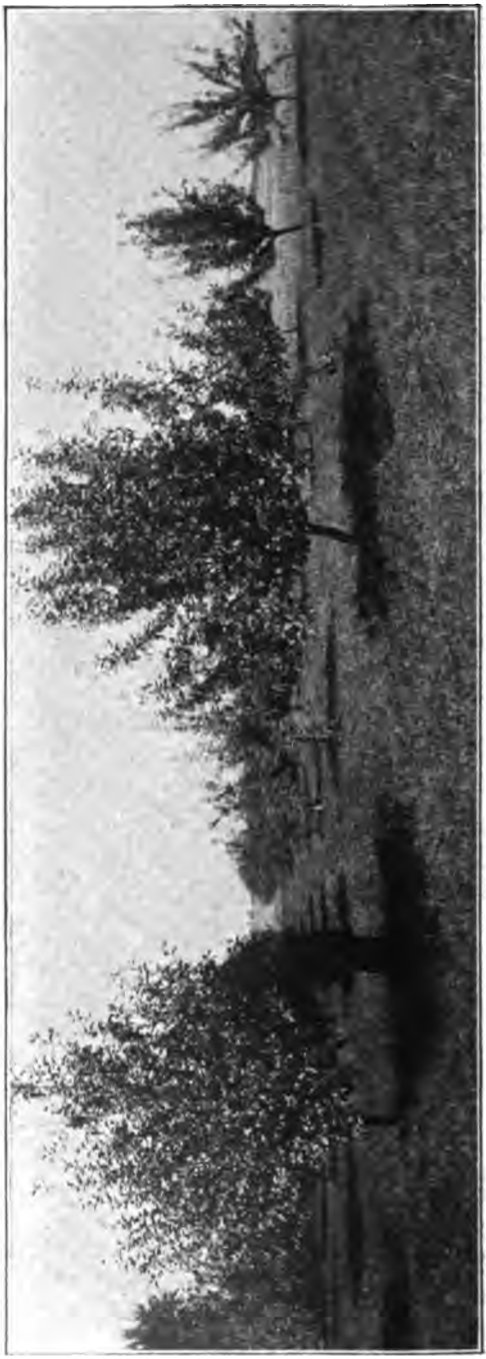
Raspberries, strawberries, currants, gooseberries, plums, apples and cherries ring the changes of the succeeding weeks through the ripening season, and it is a pleasure and delight to see the fine crops of fruit maturing here. The Loudon, as a red raspberry, stands at the head with Mr. Yahnke, it is quite evident. As to other small fruits, the writer did not notice any particular preference. The apple orchards, both young and old, were looking well, but as this is somewhat an off year in apple fruitage the crop as a whole was comparatively light. The same may be said of plums, although there was a better setting of this class of fruit than the writer has seen at any other point this year. As to cherries, there were in a general way three orchards of different ages. The orchard of medium age consisted of about two hundred trees, eight years planted, and these were well loaded with nearly ripe fruit, yielding, as we were informed, an average of about two cases to the tree, the cases holding sixteen quarts each. The youngest and oldest of these three orchards were not bearing as well as the one above referred to, but were carrying nevertheless very fair crops. These orchards were of the variety of cherry named "Homer," from its having been planted extensively in and about the village of Homer, a few miles south of Winona. There were scattering trees of other varieties of cherries in Mr. Yahnke's orchard, but the fruit that they bore was inferior in quality and scant in quantity, and many of the trees looked not to be hardy. The Homer cherry seemed to be in every way healthy, and, judging from this one instance, a safe and profitable fruit to plant, at least in that section and in that soil. The cherry orchard of a neighbor of Mr. Yahnke's, that we saw across the fence, contained larger trees than the most of those in Mr. Yahnke's orchard and were well filled with equally handsome fruit. Judging from appearances, the soil in this location is well watered by seepage beneath the surface through the substrata of rocks leading down from the bluffs above. Mr. Yahnke is especially well located for his purpose, and he has a pleasant home and in respect to location a very picturesque one. We spent the afternoon looking over his place, between the showers, and visiting with this genial old gentleman and his interesting family.

The early evening hour found us on the way back up the river to Lake City, where we spent the night with Mr. Underwood. During the forenoon of Wednesday we had opporunity, it being a pleasant day, to look over the orchards and nursery grounds of the Jewell Nursery Co. As at Mr. Yahnke's we found comparatively small settings of apples in the orchards, although a notable exception to this were several rows of Okabena in one of the older orchards that has been for several years thoroughly cultivated early and late. The company has one very interesting orchard growing well up



BLUFF-SIDE ORCHARD ON GROUNDS OF JEWELL NURSERY CO.—REFERRED TO IN ACCOMPANYING ARTICLE.
This view was taken two years ago.

the bluff-side, set in ground that, in part at least, has never been broken up, but the trees and brush had been cut off close to the ground and the orchard planted at once without further preparation of the soil. The weeds and undergrowth are kept down by one or two mowings a year. This orchard showed much thrift and was in every way satisfactory. Quite a large basin is dug around each tree, and short ditches come down from above at an angle leading into this basin, thus diverting all the water that falls upon the hillside and leaving it on the roots of these trees. Orchards in such locations as this are evidently to be successful, although the problem of getting the apples out of the orchard is yet to be solved in some practical way.



VIEW IN MR. PERKINS' SEEDLING ORCHARD, TAKEN TWO YEARS AGO, There is some blight in these orchards, as well as at Mr. Yahnke's place at Winona, the Wealthy especially suffering from this cause, and in some cases quite seriously. The Okabena is a variety particularly noticed that had comparatively little blight on it. There are few plum trees in bearing at Lake City this year, and cherries are not productive as far as has been experimented with there. As a cultivator and propagator, Mr. Underwood is not to be excelled. This place of several hundred acres looks like a garden, and judging from the evidences of thoughtful care bestowed upon it is successful in results.

At two o'clock of this same day Mr. Elliot and myself were met at Red Wing by Mr. T. E. Perkins, who drove us out to his farm home, located on the rolling prairie a little beyond the head of a long incline leading up out of a valley situated between two ridges coming up from the river where stands the city of Red Wing. This location for air drainage and in many other respects is a favorable one for fruit trees. The results of Mr. Perkins' plantings give us sufficient evidences of this fact were there no other in sight. The original Malinda tree, from which the seeds were taken that grew the now famous Perkins' seedling orchard, is no longer alive. Many trees of other varieties show the effects of age and the close environment of a shelter belt, which practically shuts the orchard in from all directions, though not so much from the east. The seedling orchard referred to is protected very thoroughly on the south side by this shelter belt and is located on the crest of a slope lying north of the farm home. It consists of about 110 varieties. Other lots of seedling trees stand in the garden on the south side of the buildings, that location also being well protected by a windbreak on the south, though farther away. These seedling trees are eight years transplanted and ten years old from seed. They are a remarkably healthy lot, scarcely a trace of disease about them and very little blight. Most of them, also, are bearing an excellent crop and making a good growth. Their thrifty appearance indicates that there has been no damage from climatic or other causes. There is no shelter, as yet, on the west side of these seedling orchards, but it is probable that, as they are becoming of large commercial value, protection will be provided in that direction also.

There are altogether about 170 seedling apple trees, all grown from seed of the Malinda apple, sown the same season, growing on this place, and about 150 of these trees are in bearing. No two produce the same kind of fruit, although many of these kinds have resemblance to the shape of the Malinda, while others show their relationship to the Wealthy, Perry Russet, Duchess, etc., with which the flowers of the Malinda tree from which the seeds were taken were crossed. As to the character of the fruit borne on these trees, there must be and, of course, is a great range in quality, size and color, etc.

Several exhibits of this fruit have been made at our state fair and the winter meeting of this society. A most attractive one was made two years ago this fall at the biennial meeting of the American Pomological Society, held in Boston, and one almost as good was made at St. Louis last fall. Probably a similar exhibition will be made at the coming Minnesota state fair.

Mr. Perkins brought up from his cellar two varieties of these seedling apples that on that day, July 6th, were still keeping in fairly good condition. It is not too much to expect that some of these varieties will prove to be of sufficient value for propagation and general planting throughout the northwest.

Is not the success of this seedling orchard and other similar orchards that have been often referred to in our proceedings a sufficient encouragement to induce the planting of apple seeds extensively throughout our state in the hope of producing similar valuable seedling varieties? While every planter does not want to devote so much ground to this work as Mr. Perkins has, yet there are very few who could not spare room for a dozen seedling trees, and there is no one who could not find pleasure in nursing their early growth and watching their development.

The evening hour found us back again at Red Wing, and a short ride returned us to our homes in Minneapolis much richer for this brief but pleasant experience.

RAISING HOLLYHOCKS.—July planting is an up-to-date way of growing the old fashioned flower.—Any one can easily raise a stock of hollyhocks by sowing the seeds as soon as possible after they are ripe, says *The Garden Magazine.* It is important to gather them as early as possible, because if left on the plants there is danger of loss from rotting as a result of the late summer rains. The old-fashioned way of raising hollyhocks was by cuttings, and if one wishes to be sure of increasing a given variety that is the only way. I found that they would produce themselves so nearly true from seed as to render the tedious cutting method quite unnecessary. Sow seeds in July in a drill hole one inch deep in a sunny, rich soil, leaving plenty of space between the seeds to allow the young plant to grow without crowding until the next spring.

WHAT MINNESOTA SHOULD DO IN FORESTRY.

GEN. C. C. ANDREWS, CHIEF FOREST FIRE WARDEN, ST. PAUL.

Minnesota is a natural pine bearing state. The utilization of forest products has for fifty years been a leading industry. Some pine will always be cut in our state, but the remaining original pine will mostly be cut within the next ten or fifteen years. After that it will be a long interval before 15,000 workmen will be employed as now, each winter, in our northern pineries. We should no longer delay the work of forest regeneration.

Remember that besides dollars and cents the forest yields many indirect benefits which concern the whole public. To the farmer's field it is a barrier against the cold north wind and the hot south wind. It is a natural reservoir of moisture maintaining water flow in streams. It beautifies landscape, ameliorates climate, enriches soil, affords covert for game.

LAKE LA SALLE, IN THE PINE REGION OF MINNESOTA.

The great economic fact in forestry is that pine forest is a profitable crop on non-agricultural land, land that is too hilly, too rocky or too sandy for cultivation. On such land the pine will, by its annual growth, earn on an average net annual interest at the rate of three per cent on capital properly invested; but as it takes about eighty years for pine on such soil to reach merchantable size individuals will not engage in the business. It must be undertaken by the state. The experience of many countries puts this beyond doubt.

A forest is in a normal condition when it has trees of different ages so that enough mature trees can be cut yearly or at every period of five or ten years, according as the market is good, for regular revenue, leaving the space cleared to be naturally or artificially reforested. The forest is thus a perpetual revenue yielding capital. A forester's first duty is to bring his forest into a normal condition.

There are in scattered localities in northern Minnesota fully three million acres of rocky, hilly or sandy non-agricultural land, a part now held by the United States and the rest by private owners, which is only fit for bearing pine. Portions of it already have trees from which revenue soon could be derived. This land the state ought to acquire and put and keep in forest. Congress has already granted to the state 20,000 acres of such land, and no doubt will donate more if it sees our state making good use of what has already been given and making some sacrifice for obtaining some of the cut-over non-agricultural lands belonging to private individuals.

Think of the great blessing to our state when it shall have the 3,000,000 acres of waste land in well managed forest, yielding a net annual revenue of $3,000,000, traversed by good roads, well stocked with fish and game, maintaining water in our rivers, lending beauty to scenery and affording delightful recreation for the great public.

We belong to a generation that does things. Minnesota, on account of its natural forest advantages and interests ought to be in the very front rank in forestry. But if we are not careful other states will get ahead of us.

KILLING ANTS.—Easy way of getting rid of the pest.—As nearly everyone is bothered once in a while with ants, the remedy advised by *The Garden Magazine* will be interesting: Boiling hot water poured into the holes will destroy large numbers of the ants. An effective remedy is bisulphide of carbon poured into the holes. This quickly evaporates, and the heavy vapor penetrates the lowest depths of the runs. Pour in two tablespoonfuls at one spot. Bisulphide of carbon is inflammable, so that it should be kept from fire or sparks for fear of ignition.

A WORD FROM KILDONAN, MANITOBA.—Mr. W. H. TOMALIN, an old member from that far northern region, in renewing his membership, writes, "I had some very large strawberries of William Belt this year. Out of twelve boxes, three were filled with fourteen berries each. They had the best flavor of twenty sorts. And from three rows 100 yards long of Loudon raspberries I picked 275 quarts last year and 300 quarts this year, besides what the birds ate."

AMERICAN ASSOCIATION OF NURSERYMEN, ANNUAL MEETING, 1905.

ROY UNDERWOOD, LAKE CITY.

(By request, Mr. Roy Underwood, who attended as representative of the Jewell Nursery Co., contributes herewith a brief description of this meeting, emphasizing particularly a talk on "Crown Gall and Root Knot," as being of special interest to our readers.)

The annual convention held at West Baden Springs, Ind., June 14, 15 and 16, proved to be the largest convention of the association's history. The central location and fame of the Springs resulted in a splendid attendance, larger than the Detroit convention of two years ago, which up to that time had held the record. With the development of the west, the American Association is adding to its membership a large number of active nurserymen from all parts of the Mississippi watershed, and the importance of the nursery industry in this section is more evident each year.

The usual papers and discussions relative to the technical features of the nursery business were present. The most widely advertised and in some respects the most interesting features of the program were the illustrated lectures on "Soil Inoculation," by Dr. George T. Moore, and on "Crown Gall and Root Knot," by Prof. George G. Hedgecock, both well known workers in the U. S. Department of Agriculture. The latter subject was naturally of the greatest interest to all nurserymen present, owing to the drastic laws framed by some states to prohibit the planting of trees infected with this problematical disease. Prof. Hedgecock, under the direction of the secretary of agriculture, has made extensive experiments with this so-called disease and after the most careful investigation has come to the conclusion that, like the nitrogen-fixing nodules found on many plants like the pea and bean, it is not a disease in the sense that it affects the successful growth and life of the tree. Crown gall and root knot, according to Prof. Hedgecock, have been known to fruit growers from the very earliest periods of history. While both of these foreign growths, found in various parts of the root system of our commercial fruits, are caused by widely varying causes, they appear to be not only local in their manifestations, but also temporary in their appearance on any particular tree or set of trees. The experiments show that three-year-old trees badly infested with crown gall and root knot after having been planted in the orchard three or four years when dug up were found to have lost every vestige of the disease. In a like manner, old orchard trees known to have no trouble of this character when planted, developed the disease locally and temporarily in after years. One of its chief causes is the cut worm and other insects which injure in any way the living tissues of the root. If the climatic conditions are right when this is done, a swelling appears whch lasts for a greater or less length of time. In fact, it appears any unnatural bruise to the root surface is apt to produce the phenomena under proper conditions. Its appearance among nursery trees, according to Prof. Hedgecock, is due largely to the great amount of cultivation given the trees in the nursery row. The cultivator teeth naturally damage many of the roots, as these are very near the surface of the ground in young trees.

The most signal act of the convention was that of increasing the scope and powers of the legislative committee, which has been laboring for many years past to harmonize the inspection laws of the various states. Experience has proven that it is an impossibility to remedy in this manner the evil that confronts the horticultural world, and an unlimited appropriation was voted to the committee with instructions to consider the matter in the light of securing national legislation.

The assistant secretary of agriculture, Hon. W. M. Hays, was present one day and gave a most instructive lecture on the subject of plant breeding. The convention for 1906 will be held at Dallas, Texas. The development of the fruit industry in Texas has been the most remarkable of any state in the Union. They are planting peach orchards of from one to ten thousand acres and other fruits in proportion. Nurserymen of the country are manifesting much interest in the new field.

ENJOY THE ROSES.—A queer fallacy induces some people to leave the roses unpicked with the idea of encouraging the plant. As a matter of fact, roses should not only be picked as freely as possible but with as long stems as the growth will permit, merely observing the precaution to leave an outward growing eye, or perhaps two for safety, on the stem below the cut.

Where it has been found impossible to pick all the roses for use, then the plants should be gone over daily, and all faded flowers removed to a point at least two eyes below the flowers. A regular practice of this precaution is the only means of assuring some autumnal bloom, in our climate, from "hybrid perpetuals."

SALTING ASPARAGUS.—The old and widely accepted idea that heavy applications of common salt were necessary to grow asparagus has been thoroughly disproven by modern practice as well as by a chemical examination. Good asparagus, as is well known, may be grown without salt, but sometimes upon soils of the sandy type better asparagus may be grown with it. Some tests made at the Arkansas Experiment Station call attention to these facts and advise those growing asparagus for home use to plant it in open rows instead of in the thick bed, as it has been the custom in the past.

GATHERING THE APPLE CROP.

EMIL SAHLER, WASECA.

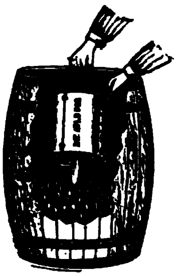
In the first place the apples should be hand picked and great care given so that the apples will not get bruised, as a bruised apple is a poor market apple and will never bring the best price. Apples should all be sorted so as to get them all one size in a barrel or basket and as much as possible one color, as such apples will bring best price, and we will always find ready market for same.

The second and third grades should all be sorted the same way, so as to get each grade by itself, such as scabby, green, red and bruised ones.

We should sort and pack our fruit in such a way as to please our customers, so they will remember us, and if they once buy from us they always will if the fruit is brought to them in first class condition. This has been my experience in selling fruit, as I always have orders to fill long before the fruit is ripe.

We should always use good, clean barrels or boxes, as it enables us to dispose of our fruit very readily for the best price.

I sort my apples as they are picked, and for that reason I have invented this sorting pail, which I find to be the only thing that will do the work handily. Now in picking the apples I have three barrels on the wagon; the sorting pail has three pockets and each pocket has a bottom for itself hung on hinges and a lever on the side of each pocket, so that I can relieve each pocket by itself. One part is for first grade apples, another for the second grade and the third one is for the third grade, and that is about all the grades that a fruit tree will have.



The pail can be made in two parts or in one part as well. By letting out of the bottom of the pail in place of pouring them out they will not drop to the bottom of the barrel and get bruised. The apples do not have to drop at all when releasing the bottom of the part desired to leave in the barrel or box; the other parts do not open until released by lever.

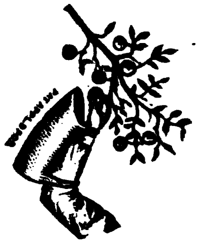
In this way we save lots of time picking the fruit off the trees, so as to get the apple when we want it. After the apple barrel is filled and nailed up I mark on the outside number one for first grade, number two for second grade and number three for third grade, and so on, and in this way we can tell what grade of apples each barrel contains, so no mistake is made. And the name of the variety of the apples should be on each barrel. That will save a lot of trouble. And each picker should have two pails, so if one is full he can have the other one. One man takes care of the apples and can do the work for four or five pickers.

I have a wagon on each side of the fruit tree and a plank on the end of the wagon which goes from one wagon to the other, so the pickers can go around the tree without getting off the wagon. One horse can pull the wagon. I also use a hook to pull the branches to me, so that I will not have to get into the tree, as by getting in and on to the tree, the picker will be apt to break some limbs. In this way each picker has a hook. If the hook is not in use, it is hung on a limb so the picker will always have it handy. The handle is six feet long, and is made of wood, so it will not disbark the limbs.

The apples should be kept inside until frost comes and not in a cellar.

Two or more pickers should go ahead and pick on the ground all of the lower branches, but should never mix up a fallen apple, which must be kept by themselves, as they will spoil the others if put among them.

Before I had my sorting pail I used three pails, and it was a good deal of bother to handle the three pails. Now I have it all in one pail on one handle with a strap over my shoulder and a snap in the strap so as to snap it into the handle of the pail, and so I can use both hands to pick with. With one hand I hold the limb and with the other I can be picking and sorting. My fruit sorter is useful in all kinds of fruit, such as plums, apples, peaches, oranges, lemons, pears, apricots and potatoes and for a good many kinds of vegetables,, etc.



I have a little fruit pocket which I attach to my arm to pick into, so that I will not have to put my hand into the pail every time when I have a few apples or plums. I find this sack useful and handy. It can be made as large as you want it, but one or two quarts is large enough. So I fill that up and keep three or four apples in my hand and bend my hand over the pocket so the fruit will not roll out, and when in the pail I straighten my hand, and then the fruit will roll out into the assorting pail where it is wanted. It is very handy for plum picking and small apples.

This fruit pail is very handy and will last a long time.

BLIGHT OF THE PEAR AND APPLE.

L. F. HENDERSON, BOTANIST, AGRICULTURAL EXPERIMENT STATION,
MOSCOW, IDAHO.

(Extract from Bulletin.)

Though this trouble has been known as working havoc with orchards for a century or more, it is only in comparatively recent times that its true nature has been understood. For a long period of years the discussions of this trouble were of such a theoretic nature that many horticultural societies forbade its being brought up in their meetings, unless some one had something of absolute knowledge to offer about it. Various causes were ascribed for its presence, such as "sour sap," "atmospheric conditions," "soil conditions" and "effects of various fungi." In 1878, however, Professor Burrill, of Illinois, discovered the true cause and announced his discovery to the world. This was found to be a bacterial disease, due to the presence of myriads of little germs in the inner bark and cambium. The germ was called by Prof. Burrill Micrococcus amylovorus from the eagerness with which it seizes upon and devours the starch in these tissues. From the subsequent studies of Arthur, at the Geneva Station, in New York, and of Waite, in the U. S. Department of Agriculture, we know how this germ or bacterium lives, reproduces itself and is carried from tree to tree.

Luckily the disease is a very conspicuous one, which renders its presence in an orchard the more inexcusable when well known. It affects twigs, leaves, young fruit and the branches or trunks. From the experiments of Waite it has been found that it cannot attack the plant through the uninjured bark or leaf. It can, however, gain entrance through any injured place on trunk, limb or even leaf. Its most common points of entrance are natural ones. These are the young growing tips of the branch, the stigma of the flower, or the glands which secrete nectar. Therefore the "flower-blight," the "twig-blight" and the "branch or trunk blight" are all forms of this disease.

In the first, the young twig, especially if it be growing rapidly, turns black in both leaf and stem, and wherever the leaves are blighted they remain black and dead through the ensuing winter. This black, piratical flag is the surest evidence of its presence.

In the "flower-blight" a whole bunch of flowers, or frequently every bunch on the tree, will be affected, and dying back to the beginning of the spur hold the blackened flowers and young fruit through the entire year. This is the most common form on the apple.

Frequently an entire limb or even the trunk will be affected for only a short distance, while the top will be entirely free from the disease, and this can only be understood when we speak of how the disease is spread.

More frequently upon the pear several limbs and even the whole trunk will be affected, and when this is the case the tree should be cut out root and branch.

If the young shoots of a tree affected with blight be examined, small drops of sticky, thick fluid will be found exuding from the edge of the diseased area. If one of these drops be examined with a high power microscope, myriads of little oblong bodies will be seen, some separate, some in short chains. These are bacteria. Arthur proved that these bodies, inoculated into a sound tree by a needle, would produce the disease. Waite proved to us beyond dispute that insects, especially bees, are the main instruments in their dissemination. They are attracted by the viscid sap, suck up part or all of the drop, and then carry thousands of these germs with them to inoculate flowers, shoots or wounded places in the bark. Undoubtedly heavy currents of wind assist in spreading the disease and probably account for the commonness of "twig blight." The question comes right here: Shall I keep bees if I have an orchard? Certainly, and for two reasons. First, the honey and the revenue derived from it are often no small object to the farmer. Second, the bees are absolutely needed to assist in proper cross-fertilization, or pollination, of the flowers. This leads us to the subject of remedies, for preventives there are none.

REMEDIES.

As soon as the bacteria are carried to young flower or wound, they effect entrance and, living upon the sap and starch, multiply rapidly. If they gain entrance along a limb or trunk, they live in the inner bark and cambium-layer, that layer which adds yearly to the growth of both bark and wood.

It can readily be seen from this that they are well covered, and consequently spraying does no good. The only remedy thus far found has been and is the careful and continuous use of the saw and pruning knife. All diseased shoots and limbs should be cut off at from six inches to one foot below the place of evident infection or injury, as the bacteria have always gone down deeper into the limb than seems to be the case from the outside. Many pruners have the habit of splitting down the bark to see how far the disease has proceeded, but this practice is to be condemned, as they never see how far the disease has proceeded, and the incision of the knife may carry the bacteria from diseased to healthy tissues. If the blight is bad in either the pear or apple-orchard, the knife or saw should be sterilized each time it is used by either passing it through a flame or dipping it into weak carbolic acid water or kerosene. The pruned limbs or fragments should be collected and burned, and both pruning and burning should be done mainly in the dormant season, before the sap has started, the bacteria have awakened and the bees are visiting the orchard. This is the best time for pruning and burning, but not the only one; it should be done whenever the disease makes its appearance. All large wounds should be painted over with paint as soon as the tree is trimmed, to prevent re-inoculation through exposed tissues. Where the blight is bad, even young shoots or water-sprouts should have their cut bases painted, for it has been known time and again that the limbs and even trunks have been inoculated through these cut stubs.

The pear is more easily pruned for this disease than is the apple. On the former it commonly manifests itself in dead or dying shoots, limbs, or trunks, which can readily be cut away below the progress of the disease. On the apple, however, it is commonly the shoots all over the tree, and especially the fruit spurs and their clusters of flowers, which are most affected. Pruning here becomes a much more difficult and even serious undertaking. Where only a few shoots and fruit spurs are affected these can be cut away close to the tree, and the wound immediately covered with paint. Where, however, almost all of the fruit spurs on the whole tree have died, the best way is to cut off entire large limbs, cover the wounds with paint, and stimulate the production of new shoots and subsequent fruit spurs. In one place my attention was called to a very interesting tho sad evidence of the efficacy of bees spreading the disease. All the splendid large apple trees near the hives were without exception seriously injured by blight, while as we proceeded on radii from the hives the blight grew less and less and almost disappeared on the edge of the orchard farthest from the hives.

It has been often noticed that rapidly growing trees are more subject to blight than slower growers, and that those in low ground or "swales" are more subject than those on higher ground. Orchards should therefore be planted on well drained land and should not be stimulated by too much water or too much fertilizer.

MOONFLOWERS.—The moonflower, or evening glory, has large trumpet-shaped, white flowers, often very fragrant, which open during twilight and sometimes last until noon of the following day. They usually expand so fast you can see them move, a bud often becoming a full-blown flower within a minute.

MY DUCHESS ORCHARD.

ELI STONE, EXCELSIOR.

My father had two orchards planted on his farm in Pennsylvania, one sloping to the east and the other sloping to the west. The orchard that sloped toward the east bore well nearly every year, while that on the western slope would bear once in four or five years. This I observed, and it contradicted to some extent the idea that Minnesota fruit men have in that they claim that a northern slope is the best situation for the orchard. So when I planted this little Duchess orchard I had a small piece of land with about twenty degrees slope to the east, and I concluded that would be a good place to set out my trees. I planted forty-five Duchess trees there in 1882. In 1879 I had planted an orchard of Wealthy trees, about one hundred in number, on the opposite side of my driveway where the ground was level, and those Wealthy trees came into bearing readily, and in 1883 they bore forty bushels of very nice apples. That fall was the killing time in Minnesota.

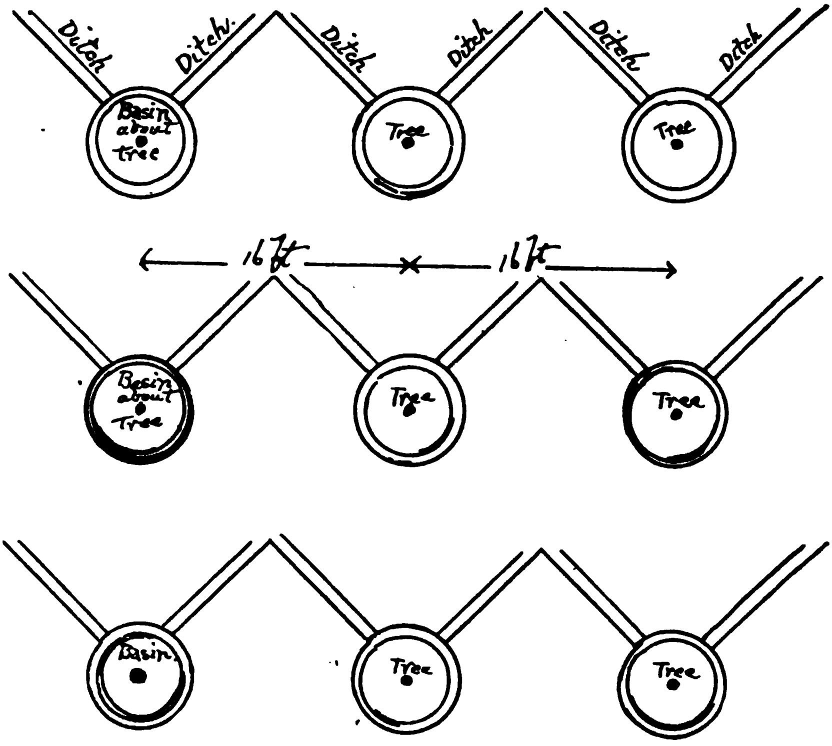


DIAGRAM SHOWING METHOD OF ARRANGING TREES WITH BASIN AND V-SHAPED DITCHES RUNNING TO EACH TREE IN MR. STONE'S DUCHESS ORCHARD.

There has been a little difference of opinion about that, but I am sure I am right about it, because I observed that the conditions of the weather at that time were the cause of it. In September and October we had warm, showery weather; it was very warm for that time of the year; and my Wealthy trees started to grow, every tree had blossoms on it in October; the trees were in a soft condition, and the very first freeze in November killed the trees. If we had had no more winter after that November they would have been dead just the same. So it was not the cold winter that did it, but it was that first freeze we had in November. The leaves stayed on all winter. This little Duchess orchard that I planted in 1882 killed back just the same. I grubbed out my Wealthy trees and threw them away, but I let my Duchess trees stand and sprout up. I saw they were bound to go ahead and grow, so I helped them along a little by fertilizing them, and they made a fair growth and soon came into bearing. I observed that in every heavy shower we had in the summer time the water ran right off on top of the ground (my trees were in grass sod) into the marsh below and did not benefit my trees. So I conceived the idea of putting into effect what I called natural irrigation. I removed the sod on the upper side of the trees and made a kind of natural basin, banking it up on the lower side, or on the downhill side, of the tree. Then I made little diagonal ditches with my hoe from one tree to another to conduct the water to the trees, and the consequence was when we had a heavy shower the water would flow over the top of the ground until it came to one of those little ditches, when it would be conducted to the little basin that surrounded each tree. Each tree would in a heavy shower catch about a barrel of water. That was a great benefit to them, and I noticed they began to grow rapidly and do well. Since those trees have come into bearing they have borne every year. They have not failed a single year, and it is perfect fruit, there being very few apples that are deformed or in any way imperfect.

I never spray my trees. That may be contrary to what most of you practice, but I have never sprayed them, and still my fruit is very perfect.

I have located in this little orchard on an average about twenty swarms of bees. I do not claim that bees are a positive preventative against injurious insects, but I do claim that the bees make it very uncomfortable for those insects. They are on those blossoms as soon as they begin to open, and they are covered with bees from early in the morning till late at night every day as soon as they come into bloom, and it does not give the insects a chance to work in the blossoms. I attribute the perfection of my fruit to the presence of those bees in the orchard. Your society looked around through the country for some nice apples to send to the World's Fair and to the state fair, and they decided I had as good as or better than any one else, and as a consequence they bought twenty-three bushels of my apples for exhibition purposes. I consider that quite a large feather in my crown.

Last year these forty-five trees bore me 325 bushels of nice, perfect apples. This year they bore 200 bushels, and the year before they bore 200 bushels, and prior to that time I cannot give the exact figures, but they have borne every year continually since they came into bearing and a good yield at that. (Applause.)

Capt. Reed: Do you cultivate among your trees?

Mr. Stone: I do not; I seeded the ground down to timothy and redtop, and it is sodded over. But I cultivate in this little basin frequently with a hoe and loosen the soil around the trees so that it may readily absorb the water.

Mr. Philips (Wis.): Do you mulch them?

Mr. Stone: Just what I think proper. I do not believe in mulching so heavily or in fertilizing so heavily, but I do occasionally put on a little nice mulch of barnyard manure and stir it into the soil around the tree.

Mr. Elliot: How much do you put around each tree?

Mr. Stone: Oh, a bushel or two.

Capt. Reed: How large are the trees today?

Mr. Stone: About six inches in diameter.

Mr. Keays: How large did you make that basin?

Mr. Stone: About six feet across.

Mr. C. F. Gardner (Ia.): I understood you to say that the time your trees were injured they were all killed, that the Wealthy were in about the same condition as the Duchess.

Mr. Stone: Yes, they were all killed.

Mr. Gardner: Why didn't you treat your Wealthy the same as you did your Duchess by cutting them off and letting them sprout?

Mr. Stone: I wasn't smart enough, didn't have enough hair on top of my head. I was disgusted with the idea of growing fruit, but I let the Duchess go while I dug up the Wealthy, but I would have been ahead if I had left them.

Mr. Elliot: You believe now if you had left the Wealthy you might have a good Wealthy orchard?

Mr. Stone: Yes, I made a great mistake; I might have had a good Wealthy orchard at this time.

Capt. Reed: Do you believe a north slope to be more favorable for an orchard than a south slope?

Mr. Stone: I believe a north slope is more favorable, but still I am in favor of an eastern slope, according to my observation and experience. I believe the reason why an eastern slope is preferable is because the early morning sun strikes such a slope sooner than it does any other locality, and I think that is beneficial to the fruit.

Capt. Reed: Have you any apple trees on a southern slope?

Mr. Stone: No, I have not.

Mr. Penning: Did you cultivate the orchard the first three or four years?

Mr. Stone: Yes, I cultivated the ground all over. When the trees became pretty large I seeded the ground down.

Mr. Underwood: What is your soil?

Mr. Stone: It is a dark loam with a yellow clay subsoil.

Mr. Elliot: It was originally timber land?

Mr. Stone: Yes, brush land, about the same thing.

Mr. Penning: How do you recommend planting the rows?

Mr. Stone: I don't believe that makes much difference. My reason for saying that is because this Duchess orchard is in the form of a small circle. It inclines mostly to the east, but the north end of it falls slightly to the southeast.

Mr. McCulley: How far apart are your trees?

Mr. Stone: Sixteen feet apart. That is too close, however, I find.

Mr. Underwood: How far apart would you plant?

Mr. Stone: I have planted an orchard since that time twenty-one feet apart, but if I should plant again I would put them twenty-five or thirty feet. I believe it would be better.

Mr. Stone: I omitted to tell one thing which I think is important. I feed to my pigs all the decayed fruit, the windfalls.

Mr. A. B. Lyman: That Duchess orchard is a model orchard, and the pigs eating those windfall apples insures the perfection of his fruit, and that is the reason he grows good fruit without spraying.

Mr. Stone: I think the pigs and the bees together are responsible for that condition.

Mr. A. Brackett: I was employed by our secretary to collect some apples for the St. Louis show. I scoured the country thoroughly, and I must say I did not find any orchard that had as fine Duchess as Mr. Stone raised in that orchard which he has just described. They were entirely free from worms or from insects or fungous disease, and all of the trees looked perfectly healthy and thrifty. In regard to this basin he spoke of, I do not think he made it entirely plain to all of you. It is just a hollow in the ground around the tree that holds the water so it does not run away from the base of the tree. I think that is one great point we overlook in raising an orchard in this country. Very often a tree sold from the nursery is on tender roots and not perfectly hardy in this northern country. If you cultivate the orchard and cultivate it thoroughly you will perhaps get sufficient moisture to maintain the tree, but if you seed it down you do not give it a chance to get plenty of water, and your ground is dry when the orchard goes into winter quarters. Mr. Stone has his orchard seeded down, but he has this little basin around his Duchess trees and in that way he gets a sufficient amount of water to put those trees in as good shape as they would be if under cultivation.

Mr. Elliot: Do you put a mound around the base of the tree to keep the water from freezing that flows in?

Mr. Stone: No, I don't; there is never any water allowed to stand to do harm after freezing weather comes on.

Mr. A. K. Bush: Before leaving this matter of pigs in the orchard, I would like to say that on my farm we are keeping about 150 hogs, and we let them run out in the orchard as soon as the trees come into full bearing. I find where the pigs are allowed to run and pick up the windfalls and decayed apples we are troubled very little indeed with scabby or wormy apples, but in other orchards where pigs are not allowed to run a large percentage of apples this last year were deformed by scab or there was something else wrong with them. But in this one orchard in particular, the best site I have on the farm, I gathered twenty-two bushels of apples from two trees and sent them to the city market, and there were very few that were culled out. In the orchard that I had cultivated, and it was done with what I regard as very intelligent care, a very large percentage of apples were not fit to ship. I think it is all right to keep pigs in the orchard. My orchard pays me well in the big amount of fruit I get out of it, and when the pigs are of sufficent size I turn the large hogs in there, and I think it is a benefit instead of an injury. I do not know of a better investment of time and money than that orchard that has been turned over to the pigs. I let the pigs run in the orchard until the apples are large enough to sell. They are pastured there a large share of the summer, and they never injure the trees in the least.

DUCHESS ORCHARD AT MR. ELI STONE'S PLACE.

Mr. Stone: This gentleman's pigs must be a little different from mine; my pigs gnaw the bark right off the trees.

Mr. Ferris (Ia.): The question of cultivation has been raised here, and I am near enough to Minnesota so that my experience may be worth something. I have an orchard of ten acres planted in 1880 to 1885, and I cultivated it up to two years ago. I gave them very thorough cultivation between the rows. Two years ago I seeded it down to clover. It is a healthy orchard of a mixed variety of apples; I presume there are sixty to seventy varieties of apples in the orchard. Two years ago I seeded it down to clover and turned in the hogs and plowed the whole ten acres. I consider they have been a benefit to my orchard, and I do not agree with the gentleman who believes in seeding down an orchard. I believe that cultivation is a good thing and that hogs are a good thing in the orchard.

Mr. Elliot: Were your trees injured by the hogs?

Mr. Ferris: No, sir, they were not.

Mr. Philips (Wis.): While we are on the orchard question I would like to hear from our friend Underwood. He is a large orchardist and he has not had a word to say in this discussion, I guess because you didn't give him a chance; he hasn't even had a chance to sing a song. He has renewed his youth, he has shaved off his whiskers, and he looks like a boy. I believe he would dance a jig if you asked him to do it. He knows a whole lot about this question, and we would like to have him tell us a few things he knows. (Applause.)

Mr. Underwood: I wish to say that any change or improvement you may detect in my personal appearance, of course, is due to cultivation. (Laughter.) This is a good feature of the program of this winter's meeting, and I believe it is of as much interest to you or to anybody else who has an interest in fruit growing, whether it is apples or any other kind of fruit, as we can bring up in the meeting. I do want to speak on this subject because I believe, while it might be a repetition nearly of what I have already stated on previous occasions, yet perhaps it is the only way to impress your minds, and the minds of others who may read our reports, of the importance of what I wish to say on the subject. Mr. Stone has brought out very clearly a point which I think is of the utmost importance. You recollect what he said in regard to the failure of his Wealthy and Duchess apple trees. Now, in my opinion, there was just one thing that occurred. You say the cold weather was too severe, or something of that sort, and you call it winter-killing. You hardly know what it is, but you have a vague idea that it is the severity of the climate, and my opinion is that it is just one thing that is at fault, and that is the lack of moisture. Now, don't you see? Mr. Stone informs you that he dug basins around his trees to let the water come in. It is as simple a proposition as any I ever met in business, and I simply repeat what I have said in this society before—I do not know how many listen to me or how many believe anything I say, but it is my candid opinion that there is not one person in a thousand that plants trees who takes proper care of them in that respect. I think it was two years ago that I read a paper before this society on this subject. I emphasized the fact that it had been my experience that we could grow apples as well as they could in western New York, where I was born, if we had enough moisture. We have a dryer climate and a dryer soil, and there they have more moisture in the air and more in the ground and not so much of extreme dry weather. That moisture is needed, and anything you do to conserve the moisture that falls or to provide trees and plants with sufficient moisture in the fall before it freezs up, is a step in the right direction. That is all there is to it in my estimation. Your trees die for the want of something to drink.

I say, as I said before, we lost an orchard of over six thousand trees; they did not starve to death, I gave them enough food. Then what was the matter? I simply did not give them enough water to drink. It is just like keeping a herd of horses or cattle: you give them enough oats and corn and hay and not any water—and if you have to go three or four miles to water it is a good deal of a job to drive them to water as they do on the prairies, and they go for a long time without water, and they get thin and poor, and they are not thrifty. An apple tree is just something in the same way, and I believe if you get it into your heads that it is moisture they want, and you make sure that your trees do not lack for moisture in the summer time and in the fall of the year when it freezes up, I think you will solve the question. This is just my opinion that has come to me after long years of observation and experience.

Mr. Ferris (Iowa): Do you think by ever so much watering you can keep tender varieties through the winter?

Mr. Underwood: Of course there are exceptions to all rules. It does not make any difference how hardy a tree is, it may kill. Take a Transcendent or a Wealthy, it will root-kill; if it is a Hibernal or a Duchess, it will root-kill and become black in the root. As I have seen it a good many times, if you dig down to the roots you will find they are black, while at the same time the tops are green, and the tree will blossom out and then die. So I would not say that a tender variety could be made perfectly hardy. For instance, I would not say that a Baldwin could be made perfectly hardy by giving it plenty of moisture, but I do say that a Transcendent is not hardy unless it has sufficient moisture. I have had Duchess and Hibernal trees, large and well established, kill out because, as I think, they suffered for want of moisture. You have heard here of some excellent results. Mr. Stone says he fixed a basin to catch the water that would otherwise have run away, and by doing so he has got a well established root system for the Duchess, and his trees are in good condition.

Mr. A. B. Lyman: I think we had at Excelsior general winter-killing in the season of 1884-5, when we had that wet condition that Mr. Stone spoke of. There are many Wealthy orchards standing today that were killed that year at the top but not at the root. It was a peculiar condition in connection with the hard winter.

Mr. Underwood: I think the truth of this statement may be applied to the top as well as to the root, if we have a condition of severe freezing weather, as we had in that year and in 1898-9, when we had two weeks of thirty below zero. This may be all theory, of course, but I believe that the moisture that is in the top of that tree freezes dry. You take a garment from the wash and wring it dry and hang it out on the line in weather like that, and it will freeze perfectly dry. I have plastered rooms and shut them up tight under such conditions, and they froze dry, and the plastering was as good as any I ever saw. In this case if continuous freezing weather will expel the moisture in fresh mortar and in clothes hung on a line, may it not act in a similar way in trees in the orchard? Then you have another condition of black heart in the tree in the woods. You get that same condition in the root. If your root is soft—and if you have moisture in the ground, the root is soft—it is protected; and the top may kill off, but it will sprout up and give you another tree. I want to call your attention to the propriety of this position of mine, in view of the fact that Mr. Bush and Mr. Howard and Mr. Somerville and a number of other people I know, say they do not cultivate but seed their orchards down and mulch. I have been in their orchards, and I find they give them the very best cultivation, but they cultivate them with their hogs; the hogs root up the soil, and no water runs off, but it stays where it falls, and if the hogs are good for nothing else they have watered the orchard by saving the water that fell, and have picked up the fallen and wormy apples. It is a splendid idea, and it gives us a solution, I believe, of the whole question that comes up here year after year in regard to the killing of our orchards, that what our orchards need is moisture. We have not got a drove of hogs, but we see in some way that the trees get moisture. Our soil in one orchard is nothing but sand a hundred feet deep, but there is in it a slight admixture of clay, and you would say it is a sandy orchard. The only way to keep the trees alive is to give them cultivation. I could fence it and seed it to clover and turn in the hogs, but I do not do that, so I cultivate. Another orchard is black, sandy loam with clay subsoil. I have lost an orchard on that ground by not cultivating, and if I cannot raise an orchard there when I do not cultivate I might raise one by cultivating, and I cultivate that orchard thoroughly. We come as near as possible to not allowing a weed to grow in that orchard. There is a time when we cannot cultivate, and after the crop is off we plow up the orchard and put stable manure all over the orchard.

VIEW ACROSS MR. STONE'S ORCHARD SHOWING ROW OF PEERLESS TREES.

Mr. Ferris (Iowa): Do you cultivate into August?

Mr. Underwood: It depends upon whether the weather is dry. We keep a loose surface on top of the ground to arrest the evaporation of moisture. I don't care whether it is August or November, I want to keep moisture in the ground.

Capt. Reed: Will the Baldwin and the Jonathan kill any quicker than the more hardy varieties? Will thev kill any quicker than the Duchess or the Wealthy?

Mr. Underwood: I think I answered that question a few moments ago. I think there is a difference in the structure of the wood of the trees, just the same as there is a difference in the structure of the oak and the soft maple; there is a difference in the structure, and I do not think that the cellular structure of the Baldwin is as well adapted to the conditions of our climate here as the Hibernal, and I do not think the grafting of the Baldwin onto a hardy root would necessarily make that tree hardy.

Capt. Reed: Then the killing must come from the top?

Mr. Underwood: That is, where the top is injured.

Mr. Brackett: Did I understand you to say that a tender root would be made more hardy by grafting an Hibernal on to it?

Mr. Underwood: I did not say that, but I have found where you have a strong growing top and a vigorous variety, like the Virginia crab or the Hibernal, it makes a stronger and more vigorous root system. I have demonstrated that.

Prof. Hansen: That is true, but it will not always convey hardiness.

Mr. Brackett: I agree with Mr. Underwood in regard to the matter of watering. I spent three years at Mitchell, S. D. I took trees there with we when I moved, I set out an orchard and lost every tree. There was no moisture, and they all killed out. We were close to the city of Mitchell. People who had the same varieties of trees in the town, and who watered them thoroughly, succeeded in wintering them perfectly, and they bore good crops of fruit. In Minnesota if a person follows up thorough cultivation it is a question of a few years only when he will get blight in his orchard, and the blight will entirely ruin it. Mr. Modlin, of Excelsior, one of the most thorough orchardists in the state, planted an orchard, and when I came there is was a model orchard. I never saw anything nicer in my life, and the Wealthy were particularly fine. He gave them thorough cultivation, and they became subject to blight, which nearly ruined the orchard, while the orchard right across the road, the old Murray orchard, that had not been cultivated for years and stood in bluegrass sod, bore large crops every year, and is in perfect condition today.

Mr. Martin: Regarding the question of watering trees, what would you recommend in the case of an old orchard that had been neglected, and which is on a slope where the soil had washed away, leaving the ground higher around the tree than anywhere else, so it forms a watershed,—what is to be done in a case like that?

Mr. Underwood: If they are large trees, of course, the root system extends down probably ten to fifteen feet. It is a pretty radical case and hard to treat. If I had to plant trees on ground like that, and I could not find a better place, I would plant them very deep. I recommend deep planting of trees on dry soils; I would plant the trees deep, and then I would cultivate. I cannot raise trees without cultivation, and I am getting along fairly well with cultivation. You cannot find anybody in the whole country that is making a business of fruit growing today, whether in California, New York, Illinois or Ohio, wherever they are making a business of it, they are doing it on the most practical lines, and you cannot find anybody but what cultivates his trees and takes good care of them. You might as well take care of a good colt until it is five years old and then put it into harness and allow it to take care of itself. A great deal depends upon the feed and water. When your horse goes to work you take the best care of him, and if it is a fast horse you take all the better care of him and do everything you can to keep him strong and in a healthy condition. And so when you get an apple tree into bearing you do not want to let it take care of itself, but you must see that it is kept in the very best condition to bear the fruit that it is intended to bear.

Mr. A. K. Bush: I had some very fine trees on my place, and they began to die, and it only took two years to kill them out entirely. They stood in my yard where the grass was kept cut every week, and those trees died out entirely. I do not suppose any amount of money would have bought them from me. I had one tree left, but it was younger and had little better conditions, the water would not run away from it quite so readily, and I said it must have some water. I had a man dig a circular basin, perhaps sixteen feet in diameter, and I turned a three-quarter inch hose into the basin and let the water run in. After it had been running several hours I thought I would look and see how it was getting on. I saw no indication of any water. There was no water in the basin, but it was running out of the hose all right, and I suppose we put in seventy-five barrels of water before that basin was filled up. I stopped the killing of the tree, and it is a pretty good tree new, but I attribute it all to the water. This fall, two or three weeks ago, I had the man put on the hose and fill the basin full of water. Right close by I have another grove of maple,—it is part elm and part maple,—and I saw the trees commenced to die, both the elm and the maple. I had always raked up the leaves and the grass under those trees because I wanted the place to look nice. As soon as I saw those elms were beginning to die I said they must have some water to drink. I told the men to leave the leaves on the ground and cut out about half the trees, and my trees commenced to recover. You can see the effects of that serious drouth there now. I can show you where the trees were injured by this drouth, but now the trees are getting along very well. That is the only thought I want to leave with you. I do not believe there is anything our trees or plants need so much as a proper amount of moisture, and I do not believe there is one planter in a hundred that takes proper care of his trees.

Mr. Penning: I would like to ask Mr. Underwood how far apart he planted his new orchard.

Mr. Underwood: All the trees we have ever planted have been too close. Sixteen feet apart is too close. I am planting twenty-two feet now, and I think I shall plant twenty-five hereafter; I don't know but thirty would be better.

Mr. Richardson: There is an orchard in our part of the country known as the Holly orchard, planted twenty-four by thirty feet, and the man in charge told me last week there were only three rows he could drive through with a team. They cover the whole ground. The orchard has been cultivated for twenty-five years, and it has borne heavy crops of apples.

Mr. Ferris (Iowa): I would like to have him tell us about his deep planting.

Mr. Richardson: Oh, well, everybody knows all about why I do that. I plant from two to two and one-half feet deep. Mr. Darby, the man who put me on to this, is the only man I know of who plants in the fall and makes a success of it. He has a fine orchard on a north slope and has fine crops of apples, and he plants in the fall. The nicest grove of trees I ever saw was planted in the fall, and from two to two and one-half feet deep. He puts the trees down that deep, flattens the roots out with his feet, and he makes a success of it.

Mr. Fay: I would like to say one word in regard to seeding an orchard down and letting it go uncultivated on account of the blight. I cultivated an orchard for twenty years, and I was rewarded with plenty of apples and very little blight. The trees were of the Transcendent and Hyslop varieties, and they only killed out on the lowest part of the ground. Three years ago I sold the place and the man who bought it stopped cultivation of the trees, and my son tells me that this year the orchard blighted almost to death. So I do not believe in stopping cultivation when the trees become old. My plan is to cultivate as soon as I expect apples, and my orchard has been successful under cultivation.

Prof. Green: I think it would be interesting to have Mr. Richardson tell us how that orchard is cultivated.

Mr. Richardson: It does not even have hogs in it. The fore part of the season it was used as a calf pasture and then he mowed a part of it, and a part was not touched, and he said it was a good thing because it helped him out with his apples. We had big winds last year, and it piled the apples up in heaps, but he sold several carloads out of that orchard. I know he sold four or five carloads.

Mr. Underwood: Do you think deep plowing would help to conserve the moisture?

Mr. Richardson: I believe it would. If you cultivate deep, if your ground is rough, and you get a heavy rain, it leaves the ground full of water, and the soil has something to fall back on in a dry time. You must not let the water that runs through your orchard run away.

Mr. Yahnke: I have listened to this discussion with a great deal of interest, and we get a good many different opinions. Thus one man reports good success with cultivation, another with seeding down, another with another method, and surely every one is honest about it, but it leaves the beginner in a position where he does not know what to do; but the main point of it all is right here, that we must understand to what end we plant this tree,—what we want to grow the tree for. If we plant a tree we must grow the root first before we grow the apple, and if we want the root to grow it must have plant food. If the ground is not cultivated the trees cannot feed so easily, and all trees have got to have food and drink; they are like a good many men,—they have got to have moisture. (Laughter.) This moisture nature supplies in abundance if we can only keep it in the ground.

Mr. Richardson: That orchard grew in blue grass sod and the grass stood up to me here (indicating the central button of his vest). If you can do any better on cultivated ground I would like to see it.

Mr. Yahnke: You have a different condition. There is not the same condition at another place. You have got to know what you are doing or what you can do with your own soil. If you have a dry soil you must prevent evaporation of the moisture. If the ground is porous, the evaporation is very rapid, and if you do not use the proper method to prevent it, your moisture is soon gone. The conditions vary on different soils. The ground that Mr. Richardson speaks of is probably very rich and very level, and is probably saturated with moisture, and if you do as I do or as Mr. Underwood does in that kind of soil,—cultivate a good deal,—you get too much moisture, and the trees do not do well. In some places we cannot do as Mr. Underwood does or as Mr. Richardson does. If we cultivate the trees until they are of bearing age and manure the ground, the ground becomes too rich and we get no fruit. In another place it may be necessary to cultivate all the time, and it is all because the soil is different at different places. If a man has no manure to put on, no fertilizer to use, and he keeps on cultivating your after year, the soil becomes more compact, and the condition of the soil such that there is no humus in it; so it becomes necessary for him to seed it down to clover, cut it down and let it decay and use it for a mulch; or he must put on some manure, some way, to get this humus back into the soil; and so we must treat the ground according to the conditions we find.

Mr. Sahler: I have planted deep and planted shallow; I have cultivated and allowed trees to stand in sod ground, and I lost the trees that were in the sod ground. Those that were planted deep stood for just three years, and those that were planted where just the roots were covered grew remarkably well, and they have borne heavy crops of apples.

SUGGESTIONS TO EXHIBITORS OF FRUIT AT THE MINNESOTA STATE FAIR.

A. W. LATHAM, EX-SUPT. HORT. DEPT.

Premium List.—The annual premium list for the Minnesota State Fair is sent out usually in May, which gives prospective exhibitors plenty of time to lay plans for making exhibits at the coming fair. A copy can be had by addressing the "Secretary of State Fair, Hamline, Minn." As soon as possible after its receipt the premium list should be looked over with care to see what entries it is likely can be made. The regulations in the horticultural department should also be read over carefully, and if the exhibitor is desirous of doing especially good work he should look over also the general regulations, to be found in the front part of the premium list, which apply largely also to this department.

Making Entries.—As the fruit develops, and it becomes apparent what entries can be made, a list of these should be prepared (not forgetting to check them up in the premium list). This list of entries should be sent to the secretary of the state fair at least two weeks before the opening of the fair, which will give him an opportunity to prepare the entry tags in season. Don't put this off with the thought of going to the office personally with these entries after you reach the fair. It makes delay for you and them. A printed form to be used in making the entries is sent out with each premium list. Use this as far as it will go and add to it if necessary.

Season Ticket.—When sending the list of entries do not forget to enclose $2.00 for a season ticket, which the regulations require the exhibitor shall take out if the first premiums for entries he makes amount to $10.00 or more.

Selecting Fruit.—There is no enterprise that pays better for the time and care employed in planning for it than the exhibit of fruit. Specimens intended for this purpose should, as far as possible, be selected some time beforehand. Whenever the exhibitor runs across fine specimens they should be marked in some way, and the necessary time taken to go through the orchard or vineyard two or three weeks beforehand and mark desirable specimens, so that they may be easily found thereafter.

Storing.—Fruit intended for exhibit should be allowed to remain on the trees or vines as late as possible, so as to get the benefit of the fullest size and color. Such varieties. however, as ripen before that time should be gathered when mature enough and either sent to the cold storage provided by the fair management or cared for similarly at home. Many exhibitors have good refrigerators or can get opportunity for storage in some good refrigerator in their neighborhood. It will be found to pay to do everything connected with this work in the very best way you know how—and, indeed, what is there to which this rule does not apply?

Gathering.—At the proper time (allowing just time enough to get the fruit to the fair in season) gather the best specimens that you can find, those that are of the largest size and fullest color, free from blemish, either by bruise or insect, and of typical shape, being particular in the case of the apple to preserve the stem. They should be picked off and handled with the greatest care, and before packing in box or barrel each specimen of apple should be wrapped in one or, still better, two wrappings of paper.

Sorting.—A very common practice on the part of exhibitors is to bring to the fair a quantity of unassorted fruit, intending to select therefrom specimens to be used in connection with the several exhibits. This method makes it necessary that the exhibitor should get a large quantity of fruit out on the tables at one time, which must be carried later to different parts of the hall, consuming a great deal of time and causing such annoyance to fellow exhibitors and the management. It is a great mistake to put off the sorting of the fruit till the exhibitor reaches the fair. Taking the whole work connected with gathering the fruit and setting of it up at the fair, it can be done in half the time and very much better if the fruit is sorted at home. For instance, to illustrate the methods clearly: if the exhibitor is intending to exhibit a collection of apples, a sweepstake of apples, a collection of ten varieties of apples and a single plate of apples, he should gather enough specimens of each kind that is to appear in all of these entries; that is, for instance, of Duchess he should gather (allowing four specimens for a plate) four times four specimens, and two or three extra ones to allow for bruises, etc. Taking these Duchess apples to a table conveniently placed near by, he should select first the *best four* specimens for the single plate entry. Each specimen should be wrapped in paper, and these four specimens then put into a paper bag with the name of the variety written on the outside, and this bag should be put into a box which is intended to hold *only the single plate entries.* The *next best* four Duchess should be selected from those left to go with the exhibit of the best ten varieties and put into a bag as directed, and then into a box that is to hold *only the ten varieties.* The *next best* four might be selected, and the bag containing them put into another box intended to hold the *collection of apples and nothing else.* The rest of the apples, packed as before described, should go into a fourth box *to hold the sweepstakes only.*

This plan of gathering, selecting and packing in separate boxes should be followed with all the varieties that go into the various fruit exhibits, so that when the fruit arrives at the fair the box containing the single plate entries (which should be plainly marked with its contents on the outside) can be carried to the single plate entry table and its contents rapidly placed on exhibition. The box containing the sweepstake exhibit can be carried to the sweepstake table, etc. If the exhibitor has never tried this plan it will be a surprise and delight to see how quickly the work of putting exhibits in place at the fair will be done. Instead of its taking a day or two, it will be out of the way in an hour or two and save you and others much vexation and fatigue.

A separate box for each class of exhibits is, of course, not an absolute necessity, as all of them can be placed in one box or barrel and separated in such a way that each one can be taken out by itself and placed on the tables without confusion or mixing with the others.

Packing Apples.—Fruit may be packed for the purpose of exhibition in any kind of a receptacle that is firm,—and be sure that the box or whatever it may be is packed solid full with fruit and any unoccupied space in it is filled with some suitable material pressed in tightly to prevent motion among its contents and consequent bruising. This is very important. Some of the best apples the writer has seen at the fair have come in cases similar to those used for eggs, with each apple wrapped in paper in a compartment by itself.

Marking.—If the exhibitor wishes to be able to identify his apples after being placed on exhibition he can write his initials with a pen and ink on the skin of the apple down next to the stem. Some exhibitors do this.

Packing Grapes.—In packing grapes for the fair, to preserve the bloom the writer has found it the best plan to pack in small boxes or in baskets, putting first a layer of some soft and elastic material in the bottom, then a piece of newspaper, then a layer of bunches—placed in a sloping position, stem end lowest, with paper between, so the bunches will not touch one another—then a thickness or two of newspaper, another layer of grapes, etc. The same process should be followed in gathering the fruit and sorting it as described for apples, so that the single plate entries are put into a separate package from the collection, etc. If grapes are packed in baskets they should, if possible, be handled by the exhibitor and not consigned to the tender mercies of an express company, by whom the fruit is almost sure to be injured in rough handling.

Packing Plums.—In the case of plums, while separate wrapping is not objectionable, they would carry in fairly good shape by simply putting the quantity required of each variety for each entry in separate paper packages, keeping the different entries separate as heretofore described. They would come in better condition, however, if placed in single layers with paper, cotton batten or other suitable material between the layers. Under no circumstances put a large quantity together in a box or basket and carry them loosely. Remember, bruises on fruit, if not apparent immediately, become so in a day or two and rapidly grow worse.

Shipping.—The best way to get fruit to the fair is for the exhibitor to bring it himself, which he should always do when possible. The next best way is to send it by express, charges prepaid, directed to himself, "Horticultural Department, State Fair, Hamline, Minn." Shipments by freight require too much time and are not as well handled.

Entry Tags.—Before beginning the work of arranging the fruit at the fair, secure the entry tags at the office of the secretary of the fair, so that they may be placed with the exhibits as fast as they are set up. It will be noticed that the entry tags are marked to be torn in half, and if it is the purpose of the exhibitor to arrange with some other person to remove the exhibit at the close of the fair the lower half of the tag should be secured by the exhibitor and given to the person who is to get the fruit, with the proper order to the superintendent, so that there may be no mistake about it.

Putting in Place.—In placing apples on exhibition at the fair, put four specimens upon each plate in a uniform way, preferably with the stem up, having one apple on top of the other three, and with two of the three lower apples facing the front, taking pains always to present the most attractive side of the apple to the front also. (Crab apples require six to the plate, which may be placed in a single layer.) Arrange the plates in the exhibit at a uniform distance from the front edge of the shelf and at a uniform distance apart, allowing about a half-inch space between the plates where there is room to spare. In arranging a collection, by placing the different varieties according to color and size the exhibitor can get a better effect than when placed on the table at haphazard. For instance, the plates of the smallest apples might be put on the lower shelf, those of the next size immediately above on the next shelf, and so on, with the largest apples on the upper shelf. A very nice effect in color may be produced by making every other plate of a yellowish color and the balance reddish, or by alternating colors in the rows. Arrangement is a matter of taste for the exhibitor, and as taste shown in the arrangement of the exhibits is considered by the judges, it is worth while to pay considerable attention to this.

Labels.—After the fruit is in place, labels, printed as far as possible, should be secured of the management, and one placed on each plate of fruit, using the label pins also provided. The labels should be put on with evenness, taking care that each one stands erect and faces squarely to the front, to produce a handsome effect. *Don't write* the name of the variety on the plate containing it.

Regulations.—It will be noticed that the words "must" and "must not" occur frequently in the regulations of the horticultural department as published in the premium list. It is the duty of the management to strictly enforce these regulations, and the exhibitor who takes pains to inform himself in regard to them—and they are easily understood—will find it greatly to his advantage. Special attention is called to the regulation requiring fruits to be in place before the fair opens.

Personal Attendance.—It is desirable that every exhibitor should arrange his fruit himself, and in the case of large exhibits it is absolutely necessary. Small exhibits received from parties living at a distance from the fair are placed on exhibition by the management if the proper entries have been made and the superintendent notified beforehand, but such fruits should always be directed to the superintendent of the department at the state fair and received in time to put on exhibition before the fair opens.

It is always a great advantage to the exhibitor to be present and set up his own exhibit and to remain with it at the fair as long as possible. It is the presence of the fruit growers of the state with their exhibits that renders the horticultural department of so much practical value to the public, who are often there for the purpose of getting information in regard to fruit raising, and this can be secured in no other way so well as by personal contact with those who are engaged in the business.

In the case of a collection, the exhibitor might display his name and address on a printed or neatly written placard tacked to the side of the table just below the exhibit. It undoubtedly adds to the interest of the public to know where and by whom the fruit was grown.

JAPANESE SNOWBALLS.—The good old fashioned snowball that used to be in every yard is probably doomed, says a writer in *The Garden Magazine*. The aphides, or plant lice, cause the leaves to curl so that they lose their beauty, and the flowers are not nearly as large as they should be. People could spray them, but they won't. Its place will be taken by the Japanese snowball, which has a smaller flower but better foliage and habit. The common snowball does not make fruit, but the single form has scarlet fruits which are beautiful from August through the winter and are not eaten by birds. Those of the Japanese species begin to color by the end of July and are most attractive in their scarlet stage before they turn to bluish black. There are twenty-six other species of Viburnum worth cultivating, and most of them beautiful in flower, fruit and autumn colors.

MINNESOTA ROSE SOCIETY, SUMMER MEETING, 1905.

J. P. BROWN, SEC'Y., EXCELSIOR.

At the summer meeting of the Minnesota Rose Society, held at Excelsior, July 1st, the display of roses was much better than we anticipated, considering the bad weather, there being 792 entries of flowers, mostly roses, by twenty-one exhibitors. However, some of the same flowers were entered two or three times in different classes, but I think had they been divided up in vases of five blooms each there would have been as many vases as the number of entries. The attendance was very satisfactory, a large number being present from Minneapolis, St. Paul, White Bear Lake and other points. The speaking in the Casino was well attended and much interest was shown in the subjects discussed. Rev. Donald McKenzie, of Excelsior, spoke on "Flower Culture and Its Influence for Good;" Mrs. N. T. Rugg, of Woodside, on "Sweet Peas;" Mrs. N. S. Sawyer, of Excelsior, "Perennials;" L. R. Moyer, of Montevideo, gave us a very instructive and interesting paper on "Hardy Ornamental Shrubs;" as did also O. F. G. Day, of Minneapolis, on "Roses." After the exercises the awards were made, the most of them on roses going to Mrs. D. C. W. Ruff, of Bald Eagle Lake; Mrs. H. B. Tillotson, of Eureka; Alfred Hawkins, of Deephaven; and J. P. Brown, of Excelsior. Mrs. F. H. Gibbs, of St. Anthony Park, received premiums for best display of perennials, annuals and sweet peas; Mrs. G. H. Tennant, of Wildhurst, on Shasta daisies, of which she had a very attractive display, as also of nasturtiums; Mrs. Fred Zuercher, of Excelsior, captured the premium on pansies, and Mrs. Lynch, of Eureka, on poppies. The seed from which they were grown was brought from Germany.

The "Fisher Holmes" was selected as the finest red rose on exhibition. This was exhibited by Mrs. A. S. Hanson, of Minneapolis. The "Paul Neyron," exhibited by Alfred Hawkins, of Deephaven, was thought to be the best pink rose, and the "Margaret Dickson," exhibited by J. P. Brown, the best white. The finest rose of *any* class or color was said to be the Baron de Bonstettin, exhibited by Mrs. D. C. W. Ruff, of Bald Eagle Lake. This is a very dark, almost black rose of handsome form, and received a great amount of admiration from all visitors.

The judges were Judge David F. Simpson, Wyman Elliot and Mrs. A. S. Hanson.

The regular meeting of the society for electing officers was held at Excelsior, July 8th, and the following officers were elected: President, Mrs. H. B. Tillotson, Eureka; vice president, Mrs. G. H. Tennant, Wildhurst; secretary, J. P. Brown, Eureka; treasurer, Charles Rixon, St. Louis Park.

There was an executive board of ten members also elected. The present membership of the society is forty-five.

PLANT BREEDING AS A PRACTICAL PURSUIT.

PROF. C. P. BULL, ST. ANTHONY PARK.

In the line of horticulture, perhaps more than in any other branch of agricultural pursuits, plant breeding is most fascinating and interesting, and it pays large returns for the money and time expended. The developing of a certain color in the flower, the fixing of certain stripes in the foliage, the elimination of the pits of plums and the seeds of oranges and lemons, the originating of types and varieties, all are most interesting and have a value commercially as well as in demonstrating the possibilities of breeding. In other lines the system has been perfected to a higher degree, and the results have been equally as valuable and more demonstrative. The increasing of the sugar content of the beet from a few per cent to a crop average of about fifteen per cent is the result of but a few years' careful selection and has been of world wide value. The increase of about one per cent a year in the oil content of corn has been the result of work carried on at the Illinois Experiment Station. Corn is also receiving much attention in fixing types and increasing the yield. Carefully prepared data show that sixteen bushels per acre were added to the yield of a variety of corn by a few years' systematic selection. That the work is practical is evident from the fact that Illinois and Iowa and other of the corn belt states have started the breeding of varieties of corn.

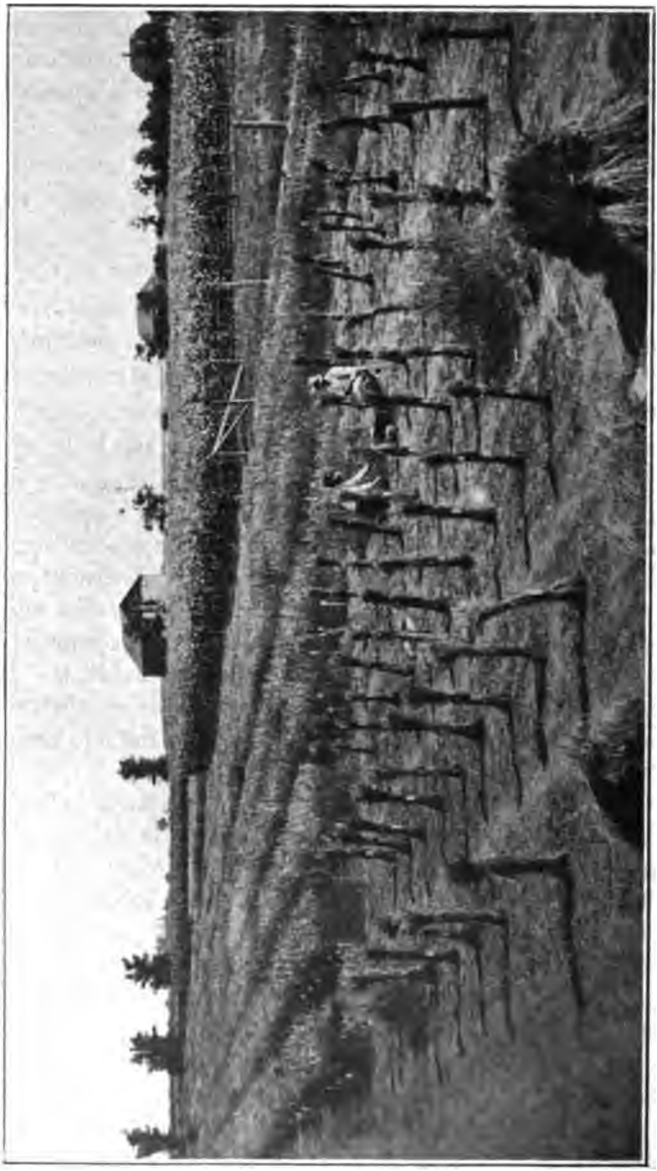
PROF. C. P. BULL, ST. ANTHONY PARK.

In any line of work there must be a certain remuneration. This may come in the form of dollars and cents; it may come in the form of gratification; it may come in a form offering a goodly portion of both and be followed by a reputation which carries with it confidence and respect. Plant breeding is no exception to this, but offers much in the way of interest and encouraging returns. As a practical pursuit it has proven itself worthy of any man's thought and attention, either for profit or pleasure. The results which may be attained are directly proportioned to the energy expended. Every individual possesses an inherited tendency toward certain characters which come to it either with full vigor or impaired by neglect or by unavoidable conditions. These characters are transmitted to the progeny, and thus the handing down from generation to generation is of full measure with always a greater tendency toward deterioration than toward improvement. The hidden possibilities are always present, however, and require only the effort of the systematic breeder to discriminate between the desirable and undesirable and to bring out the desirable ones and keep them uppermost in generations to come.

To those who visited the World's Fair at St. Louis and saw the hundreds of hybrid and selected gladioli, it was manifestly evident that Prof. Groff had brought out characters that seemed next to impossible. Hybridizing with him has passed from an art to a science. He can tell with almost absolute certainty what the progeny will be when he unites the characters of two known individuals. Burbank, the originator of the famous Burbank potato, is equally skillful in his work and has accomplished wonders by studying and breeding many of the horticultural plants.

Mr. Gideon through persistent effort was awarded the well known Wealthy apple. Though the seed was one among a very great number and the tree one of many millions grown with a view to bettering the Minnesota apple condition, the Wealthy stands by itself today a monument to Mr. Gideon, and to have produced it was to him most gratifying. The state owes much to Mr. Gideon and as recognition of this good work should at all times welcome such honest endeavor.

Plant breeding today is not practiced as it was a few years ago. People have made it a study and have devised methods that have made it possible to find those plants or sexual parts the intrinsic values of which as parents or foundation stocks are superior to any of the many individuals or parts thereof which are taken into account in the competition. The rediscovering of Mendel's law has added new impetus to the work and assurance to the fixing of the types when once procured. With accurate records the stability of any desirable characters may be safely shown. Thus breeding has passed from the realms of chance to one of a high degree of certainty. We do not place so much weight now upon the occasional so called "sport" but depend upon known quantities. This is less true in horticulture perhaps than with other phases of agriculture.



FIELD CROP BREEDING AT THE MINNESOTA EXPERIMENT STATION.

Single seeds are planted at regular intervals, thus giving the plants uniform conditions. In the foreground the variety plats are being harvested. By such methods of planting and rigid selection two new wheats, one new flax, one new corn and two new oats have been originated by the station, and these have been from 8%-20% better than other varieties.

Flowers and fruits are grown for their beauty, their oddity or their taste, with little attention paid to yield. Hence the occasional "sport" which meets with the slightest favor is perpetuated and retained for a longer or shorter period.

To the young man just starting his life work it is a question in his mind whether it will pay under such circumstances to indulge in plant breeding as a part of his practical pursuit. It takes but little time or expense to get the best, and it should always be remembered that good, honest, conscientious work is always recognized, and there is no way that a man can gain commendable, lasting recognition any quicker or surer than by producing an improved high grade of goods. A man cannot afford to do the minimum if he is capable of doing more. If there is a certain stock that is of superior quality, and it can be multiplied with a little more care and work than the ordinary, and this stock would raise the quality of his product, it would be not only practical but a good business move to use that stock as much as possible. I once saw a Wealthy apple tree that was very hardy and exceptionally prolific bearing a large crop of large fruit annually. It is needless to say that the scions of this tree should all be used by some practical nurseryman as a foundation for an improved Wealthy. I say improved because improvement is not alone the bettering of the flavor or the size of the fruit. The yield is the unit of measure and should not be overlooked, as it most often is with our originators in horticultural products.

To the horticulturist it is a question of where can the best scions, seeds or stocks to be obtained. Once these are secured it is up to him to use them in the most advantageous manner. To illustrate: Suppose there is a certain plum tree that bears heavily each year and withstands disease better than others of its kind, the tree being exceedingly hardy and the fruit of large size throughout and a little better tasting than the ordinary fruit of that variety. The scions of such a tree are far more valuable than the average lot and should be eagerly sought for and made the foundation of an entire stock.

It is far easier to take the first scion that comes within reach, and it is equally as easy to breed the variety poorer instead of richer in quality. I was greatly surprised in talking with a young horticulturist some time ago when he told me that "he could not afford to spend the time to get selected scions for his grafting. He was just starting and got his stock from here and there without reference to the parentage." He must "make a reputation first" before he could afford to go to the bother of securing the best. A little inquiry has shown that the reputation was rapidly being made. Several who got young trees from this man say that "they have bought all they want of that class of nursery stock." Such experiences do not injure the man alone but are a hindrance to the progress of good horticulture and the spread of the enterprise. This only goes to show that a man cannot be too careful in the use of foundation stocks and scions. The individuals and varieties of fruits, flowers and vegetables vary just as markedly and with as wide differences as those of live stock or of grain crops, and if it pays the stockman to give high prices for foundations for his herd and for subsequent sires, or if it pays the farmer to secure the best selected seed, it will also pay the horticulturist to secure the best stocks possible for the foundations of his commercial product. A certain plum tree or a certain apple tree may carry the inherited power to bear more fruit or more perfect fruit than any of its neighbors, or a certain branch may always have better fruit than other branches of the same tree. Nature has done her part; it remains only for man to take advantage of this bud variation and perpetuate the life and extent of this tree or branch. Thus the select stock is secured, and once started there is no end to the number of individuals that may be made.

HYBRIDIZING WHEAT AT MINNESOTA EXPERIMENT STATION.
The mixing of characters is often taken advantage of in order to enhance the variation between individuals. Better individuals than can be found in the parent varieties are often thus secured.

The breeding of plants with which a sexual reproduction is possible is a very simple and rapid method of improvement. The elimination of the inferior individuals is made easy and the multiplication of the choice stocks is rapid. Returns may not come directly, but eventually the effect of good breeding will show. As a practical pursuit every man engaged in the production of plants, fruits or seeds should engage to a greater or less degree in systematic methods of breeding.

(Discussion in September number.)

Secretary's Corner.

THE SOCIETY MEMBERSHIP.—The annual membership at this date, July 28th, is 1778; life membership, 149, making a total present membership for 1905 of 1927.

BLIGHT IN MINNESOTA ORCHARDS.—In the present condition of extensive blight in Minnesota orchards our readers will turn with interest to the article on this subject appearing in this number, as quoted from a bulletin lately sent out by the Idaho Experiment Station, which gives, we believe, the latest thought on this subject and offers the only known remedy for this insidious and devastating disease. We commend to your careful attention the article referred to.

THE AUGUST SUPPLEMENT.—We desire to call the attention of the members of this society, located in Minnesota especially, to the supplement sent out in connection with this number. It is in reality a blank to be filled out by the recipients. We hope that each member will realize the importance of this and give the matter prompt attention, writing into the blank after each of these questions asked the reply to the question, giving concisely the desired information, and return without delay to the secretary. This will only require a very few moments, and the information received from the members as a whole should bring out some facts of large value in the work of the association, Please do not put this off "to a more convenient season" but take the first opportunity to fix it up and mail as requested.

CONDITION OF MINNESOTA FRUITS.—The strawberry crop in our state has in many localities proved something of a disappointment, showing evidence of injury to the roots the past winter, weakening the plants to such an extent that its effect could not be overcome by the unusually favorable climatic conditions during and just prior to the ripening season. The raspberry crop, however, has made up in some measure for this, as a very full yield has been harvested from most of the raspberry fields. Other small fruits have given an average yield, as far as reported. The prospects for grapes is excellent, though they are a little backward and will need plenty of warm weather and sunshine to ripen them at an average date. The plum trees, as a rule, are not bearing heavily in Minnesota this year, and the crop gives promise of being a light one. As to the yield of apples, the prospect of an abundant yield apparent early in the season has been injured materially by the unusual prevalence of blight, the Wealthy especially being severely affected this year by this disease, so that the crop of this variety will be an exceedingly light one. The Duchess are bearing fairly well, and most other varieties will yield something less than the average crop.

The prevalance of blight has affected all varieties this year, even the Peerless, according to Mr. C. P. Blair, of St. Charles, who has often spoken of his fine Peerless orchard, showing considerable blight. The sparseness of the crop on many trees should insure some extraordinarily fine specimens for exhibition at the state fair and at the coming winter meeting of the society.

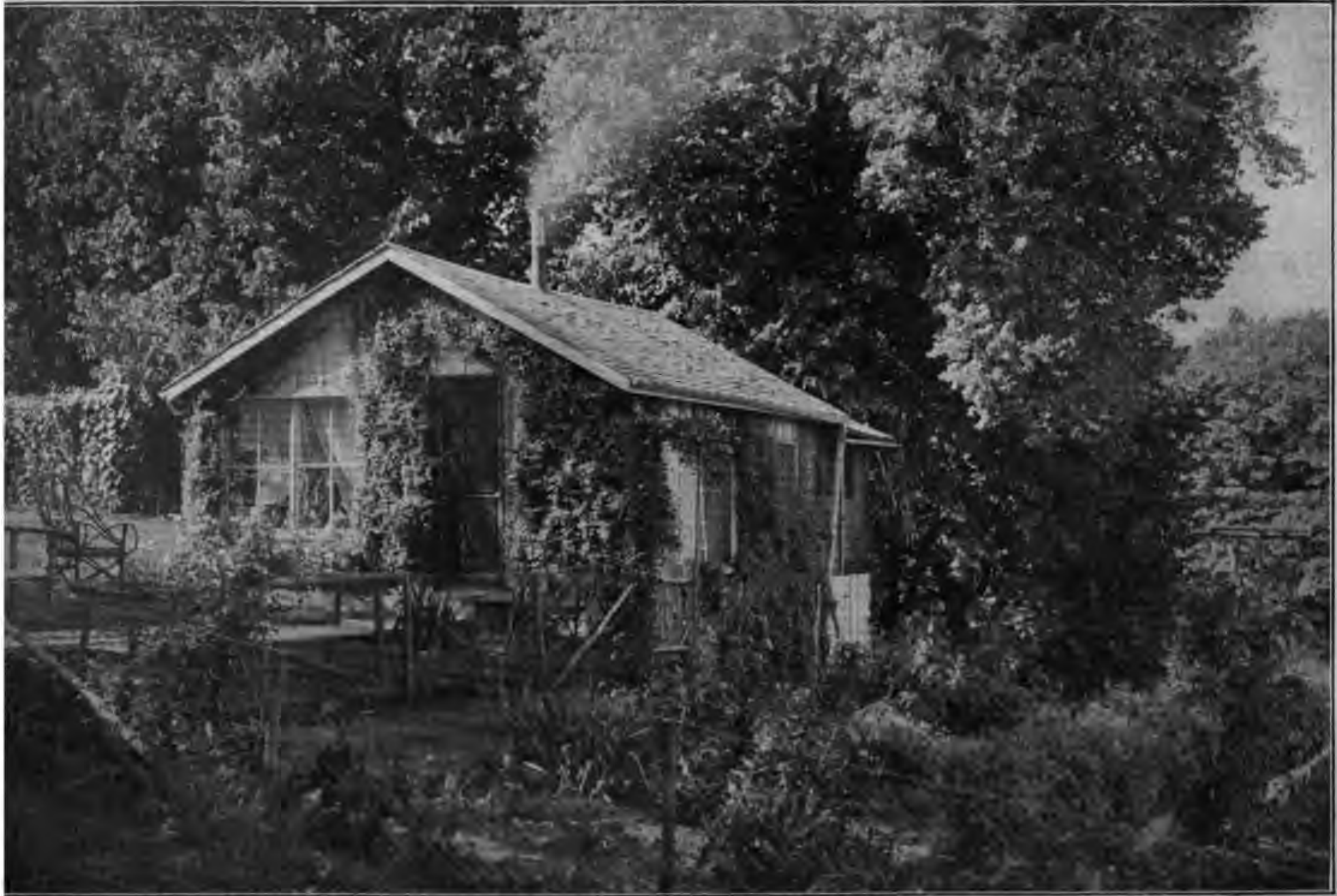
STORE FRUIT FOR THE WINTER MEETING.— Varieties of apples that could not otherwise be kept for exhibition at the annual meeting of this society, to be held the first week in December, should be placed in cold storage. Specimens for this purpose should be selected, handled and packed with great care, choosing those that are quite fully matured and thoroughly colored but have not begun to soften. Send to the secretary for shipping tags to be used for this purpose. Arrangements have been made for storing this fruit with A. Booth & Co., of Minneapolis, as for a number of years past. Do not rely upon fruit shown at the state fair for the exhibit at the winter meeting, but gather fresh specimens from the trees and pack and store for this specific purpose, to insure having the choicest specimens in perfect condition.

HORTICULTURE IN "FARM, STOCK AND HOME."—Mr. G. W. Strand, having filled the place of horticultural editor in "Farm, Stock and Home" for the past three years, since the death of the late John S. Harris, has been compelled, by the pressure of other business affairs, to resign this position, which he has filled with satisfaction to the management and large benefit to the readers of the journal. He is succeeded by Mr. Frank Yahnke, of Winona, for two years now the lecturer on horticulture at the Farmers' Institute, and eminently well qualified both by experience and natural ability as a worthy successor to those who have preceded him. Mr. Yahnke has devoted his life to the growing of fruits, and it is fitting that he should give his later years to the instruction of others along these lines. Mr. Yahnke is a member of the executive board of the State Horticultural Society and held in high esteem by all who know him.

SUGGESTIONS TO EXHIBITORS OF FRUIT AT THE STATE FAIR.—The article under this title appearing in this number was prepared two years since for the benefit of exhibitors at the Minnesota state fair and has been sent out at two different times to the exhibitors. As the writer is no longer connected with the management of the horticultural department of the state fair, it has seemed to him wise to embody in this permanent form the result of his observations and experience in connection with the exhibit of fruits for the benefit of those who are now exhibitors or may hereafter become such. He is confident that a close following of the directions here given would lessen the labor connected with the preparation and care of an exhibit and increase equally the chances of succeess in securing premiums. They are the summing up of an experience of fifteen years as a successful exhibitor and for nearly that period in connection with the management of the department.

SEEDLING EXHIBIT FOR AMERICAN POMOLOGICAL SOCIETY.— The American Pomological Society having postponed the date of its meeting at Kansas City to September 19-21, it becomes practicable for this society to make a display of seedling apples on that occasion, if it is the pleasure of the members to do this. All growers of valuable or interesting varieties or collections of varieties of seedling apples are requested to write the secretary at once, expressing their views as to the advisability of making such an exhibit and as to their willingness to contribute a display of seedling apples from their orchards for this purpose. We ought to be able to outdo the exhibit made at Boston two years ago before this same association, which brought Minnesota and our society so prominently before the notice of the country as growing succesfully valuable new fruits.

Please address the secretary without delay as to this matter, the time being short to make necessary preparation.



Mrs. N. S. Sawyer's Cottage and "Old Fashioned Garden" at Excelsior.

THE MINNESOTA
HORTICULTURIST.

VOL. 33. SEPTEMBER, 1905. No. 9

THE FLOWER GARDEN AND LAWN IN SEPTEMBER AND OCTOBER.

MRS. N. S. SAWYER, EXCELSIOR.

One continually hears the remark, "There are so few autumn flowers." While strictly speaking this is true, I think we may not complain. A garden properly managed may have as great a luxuriance of foliage and wealth of bloom and fragrance through September and well into October as in midsummer. If most of these plants begin blossoming in June or July and are not essentially autumn flowers, what matters?

One's autumn garden may contain masses of perennial phlox in a wide range of colors: white, all the shades of pink, salmon pink, rose, delicate lavender, brightest scarlet and deepest red, with none of the "malignant magentas" nor hideous purples of the olden time. Its season of bloom may be prolonged until killing frosts by repeated shearings in early summer, by removing flowers as soon as faded or by planting in a slightly shaded position, the latest blossoms often being the best.

One may also have the incomparable Japanese anemones, Whirlwind and Queen Charlotte, with their clouds of lovely white and pink blossoms, seeming in their daintiness and apparent delicacy to belong to spring rather than to autumn.

Perhaps the most striking flowers to be found in our gardens at this time are salvias, tritomas, gaillardias; the brilliant cardinal flower, "the reddest red among our autumn perennials;" and dahlias, now in perfection, in infinite variety and coloring, shading from the most delicate pinks and lavenders to the richest reds and deepest maroons.

The yellows, that we thought to use so sparingly, are here in too great abundance: golden glow, two or three varieties of helianthus, helenium, marigolds, calendulas and, best of all, coreopsis lanceolata.

Of blue flowers we have a generous number: platycodon, both blue and white, with balloon like buds and bell shaped flowers; the stately delphinium, monkshood, great lobelia, annual lobelias, forget-me-not, plumbago, two varieties of campanulas, Stokes' aster, salvia azurea, veronica and the dainty perennial flax.

With the coming of cool weather pansies again delight us with their immense size and rich colorings. Other plants continuing in bloom, or beginning to bloom at this time, are petunias, verbenas, zinnias, scabiosa, asters of many colors and varieties, cosmos, carnations, montbretias, pentstemon, the late planted gladioli, funkias, hibiscus, hypericum of graceful habit and exquisite flowers, achillea, pyrethrum hybridum, Shasta daisies; Iceland poppies, white, yellow and orange; boltonia, New England asters and pompon chrysanthemums; hydrangeas, with their panicles of creamy white flowers; clouds of snow white clematis paniculata; matrimony vine, covered with a profusion of tiny purple blossoms and scarlet berries; honeysuckles full of flowers and fragrance, masses of maurandya vine, cobea scandens and passion vine, still with a wealth of bloom.

By the twentieth of October the number has considerably diminished, and November first there is little left save pompon chrysanthemums, matrimony vine and maurandya vine.

Early in September the work of clearing ground, preparing soil, sowing seeds, planting bulbs, dividing large plants and transplanting begins, and is continued until late in October. Plants and leaves as soon as withered should be removed from the garden and burned. Division of plants is best done by using a sharp knife or spade, or by shaking off the soil and pulling the roots apart with the fingers.

Of the planting of spring flowering bulbs there is no need of mention here, as the leading dealers give reliable and explicit cultural directions.

After frosts have killed the tops of dahlias, the roots may be taken up, dried in the sun and stored in boxes or barrels in a dry, moderately warm place. Gladioli and tuberous begonias may be stored in dry sand. Tender plants may be planted in boxes of mellow soil, and placed in the cellar for winter.

With the revival of the old-fashioned herbaceous garden, the preparation of soil has become an important factor in our autumn work. That this be thoroughly done is absolutely essential to success. The soil should be well enriched, deeply dug and finely pulverized. Too much stress cannot be laid upon the necessity of supplying plant roots with plenty of nourishment and a fine and mellow soil and placed in the cellar for winter.

Fall planting of perennials should be done early enough for them to make some root growth before winter, usually from the tenth or fifteenth of September until the tenth of October. After planting they should be cultivated occasionally until the ground freezes, or they should be mulched to the depth of two inches. On account of their early blooming season, paeonies, irises, mertensia, Iceland and Oriental poppies, dielytra, perennial candytuft, lemon lilies and lilies of the valley should be planted in autumn.

Wm. A. Peterson says, "Paeonies will thrive in all kinds of soil but do best in a deep, rich loam. The bed should be trenched two or more feet deep, working in a great quantity of fertilizer. The crowns should be set two inches below the surface. The best time to plant is in the early fall, beginning September first."

The iris is a moisture loving plant and should be placed where it may receive plenty of water, especially during the blossoming season. The Japanese irises are truly magnificent, and the new varieties of German iris are particularly fine, having large, slightly fragrant blossoms of purest white, rosy lilac, delicate lavender, pale blue and pale lemon yellow, as well as the deep, rich shades of blue, purple and mahogany.

Lemon lilies do best in a moist, slightly shaded location. Lilies of the valley may be planted from the middle of October until the ground freezes. They require partial shade and rich, moist, mellow soil.

Among the many plants that may safely be planted in autumn are phlox, delphinium, platycodon, foxglove, hibiscus, lychnis, all of the campanulas, funkias, heuchera, pyrethrum hybridum, Stokes' aster, hypericum, achillea, New England aster, boltonia and pompon chrysanthemums.

No plant more amply repays liberal treatment than delphinium. Trench the soil, work in plenty of fine, well rotted manure, and in summer mulch two inches deep and give a liberal supply of water.

Perennial phlox responds to about the same treatment, though not requiring so moist a situation.

Arrangement of garden should have careful consideration in autumn. Most herbaceous plants produce better effects in groups or masses. The single specimens may be reserved for the mixed border. Better have masses of a few good things than a little of everything, however good.

Some which seem particularly adapted to massing are perennial phlox in colors, foxglove, delphinium, the perennial poppies, gaillardias, Canterbury bells, campanula pyramidalis, Stokes' aster, Shasta daisies and the irises.

Striking effects may be produced in garden or on lawn by groups of foxgloves, cardinal flower, lychnis chalcedonica, tritomas, hibiscus, bocconia and the tall delphiniums.

Suitable to some retired corner or slightly protected spot are pansies, lilies of the valley, forget-me-nots and perennial blue flax.

Endeared to most of us by association are the old-fashioned grass, or clove, pinks. Find some spot in bed or border for a few of the old time favorites. Just before the ground freezes cover the plants with dry leaves to a depth of twelve inches. Place over these cornstalks or wild hay, sufficient to keep the leaves securely in place.

November first the lawn may be lightly seeded to restore the thin places, and a shallow top dressing of rich soil, or some commercial fertilizer spread upon it.

Shrubs may usually be planted after the middle of October. The same preparation of soil is necessary as for hardy herbaceous plants. They may be protected in winter by a mulching of coarse stable litter. Of the numbers of desirable shrubs and vines none are better than spirea Van Houttii, hydrangea paniculata grandiflora and the hardy honeysuckles.

One longing for a flower garden but not knowing how to go about it may receive assistance by reading "How to Make a Flower Garden," Mrs. Ely's "A Woman's Hardy Garden," and Skinner's "Little Gardens."

There is no "royal road" to a beautiful flower garden. It may be attained only by study, patience, industry and, I may add, many tribulations.

Mr. Philips (Wis.): How do you keep your gladioli bulbs in winter?

Mrs. Sawyer: I store them in dry soil.

Mr. Benjamin: Did I understand you to say that dahlias needed moisture in winter?

Mrs. Sawyer: I take them up, dry them off and put them away in straw in a moderately warm place. I do not know that that is the best or the proper way, but it is the way I have done and with good results.

Mr. Radabaugh: How dry ought they to be?

Mrs. Sawyer: So the surface is dry.

Mr. Ferris (Ia.): Is the matrimony vine a hard one to winter?

Mrs. Sawyer: I have not had it many winters, but it makes such an immense growth every summer that it does not make much difference.

Mr. D. T. Wheaton: How do you separate the tubers of dahlias?

Mrs. Sawyer: With a sharp knife.

THE APPLE ORCHARD IN SEPTEMBER AND OCTOBER.

J. P. ANDREWS, FARIBAULT.

These two months are to the orchardist the busiest months of the year, and on the work done during this period the success of the orchard depends.

As to pruning, little need be done except to remove any dry limbs or blight, which should be cut away and burned. One of the most important matters in the orchard to attend to is one that is too often entirely neglected. Fruit well grown is half sold, and to grow fruit to perfection it must have an abundance of moisture, and to be sure of having plenty of moisture in this dry climate at this dry season of the year the ground must be thoroughly well culticated or heavily mulched. If mulching is practiced, it should be put on when the ground is well saturated and before the dry season begins. If cultivation is practiced it should commence as soon as the ground is suitable to work in the spring and continued at intervals of a week or two, depending somewhat on the weather, until the fruit is nearly or quite grown.

Gathering the crop is too often all the work that is done in the orchard during the year, and yet the trees keep on bearing year after year—perhaps not quite as perfect fruit as if we took better care of them but altogether too good for the care bestowed upon them. The methods adopted in gathering and marketing will depend so much upon the size of the orchard crop and the market that it is difficult to mention any mode of procedure that would be suited to all cases. The small orchardist who has a near market will provide himself simply with stepladders and plenty of bushel baskets, gather the fruit directly into the baskets, set them into a spring wagon and deliver them directly to his customers, either consumers or dealers, at his near-by market town, and get a good price, while his neighbor farmer, who hauls his apples to the same market in a lumber wagon in sacks, can hardly give them away.

It is best to make two grades. On the first grade *you* can set the price, on the second grade you can accept the price the customer sets or work them up into cider and vinegar—but be very careful and don't let the cider get too hard before using.

The orchardist who is into it on a more extensive scale will provide bushel boxes and barrels in advance for the crop he has to ship. Stepladders, securely mounted on hand or push carts, that have a small platform at bottom and shelf at top, are more easily placed for most of the picking, using smaller ladders for the central part of the trees.

For shipping it is absolutely necessary that the fruit should not be bruised, and filling, carrying and emptying baskets should be done with the greatest of care. A canvas pouch holding about half a bushel, suspended from the shoulders of the picker by a strap and having an opening in the bottom which may be closed by flap and button, is very convenient and less liable to injure the fruit in emptying.

The fruit is conveyed to the packing house, where it is thoroughly cooled and graded before being packed for shipping. Barrels should be marked on one end with the name of variety used in filling. The first two courses should be faced stems down. The barrel should be shaken gently several times while filling and heaped about two inches more than level, then head pressed in and securely hooped and nailed.

Perhaps it would be well to mention the suckers that need to be removed. One kind grows at the base of the tree, robbing it of the sap that should go to mature the fruit. These suckers should be cut away, or, as we say, sprouted, whenever they appear. Another kind of suckers, or water sprouts, aften grow from the large limbs of half hardy kinds where they have been injured by the severe winters or excessive blight. These should also be sprouted out.

Then there is another kinds of suckers, grown mostly in the neighboring town. They make their appearance first in a remote part of the orchard, then among your choicest trees, after dark, often accompanied by a two bushel sack—the same remedy should be applied as in case of the other suckers, they should be sprouted out.

Mr. Yahnke: Mr. Andrews made a remark here about suckers and half hardy kinds. I would like to ask him whether the hardy kinds do not sucker? If the tree does not sucker is it an indication that it is hardy?

Mr. Andrews: I have never been troubled with water sprouts and suckers growing from hardy kinds. It is generally the case with them only when they receive an injury.

Mr. Yahnke: Those water sprouts appear just as soon as you do much pruning on older trees, and if general pruning is done does not the sprout become a water sprout? Is not that the case generally?

Mr. A. J. Philips (Wis.): It is with the McMahon White.

Mr. Yahnke: Yes, in all orchards.

Mr. Philips: I do not think you will find a McMahon White anywhere in the world but what you will see it growing water sprouts. The Northwestern Greening will not grow water sprouts.

Mr. Andrews: When you cut them back at the top it acts as an injury. It does not require as much sap to support that top, and that extra sap will always, when the top is trimmed back, show itself in the water sprouts. All those badly planted trees will show water sprouts; it may be a way they have of renewing themselves after they receive an injury.

Mr. Yahnke: I think water sprouts show that a tree wants to expend its vitality, and if the chance is taken away to expand itself normally it will show it in water sprouts.

Mr. Philips: An apple tree is like a man. A man will make a fool of himself and will do it in a different way from what any other man would. Now the Northwestern Greening you can cut in any way, and it will not produce water sprouts. The McMahon White is a vigorous grower, and yet you cut it at all if it is growing vigorously, and it will make a lot of water sprouts. It all depends upon the variety.

Mr. J. C. Ferris (Ia.): I want to say a word about gathering apples. The reader of a previous paper advanced some very good ideas of the way we should pick our apples and keep them in good shape. We use no kind of vessel to pick in, we find them unhandy and in the way; but one of the best things to pick in is a common grain sack cut in two, with a hook in the top as a bail fixed to hang it on a limb, in which to drop the apples. I tried that with great success. You can take a grain sack and make two nice little pails of it. Then I use a long, light spruce ladder that will reach to the top of almost any tree and drop that against the tree. Of course, it will sometimes break some little limbs, but that will do no harm. We find a stepladder all right for the lower limbs, but have also a light ladder that will reach to the very top of the tree, and then with this pail made of a grain sack to put your apples in you will find it about as convenient as anything you can use. We shipped one carload to Chicago. They were just packed in baskets covered with burlap and shipped in that way. It is a very nice way to handle apples indeed. They were just common bushel baskets covered with burlap.

The gentleman who read the paper gives us the idea that it is simply an injury which arrests the circulation of the tree that causes water sprouts. The water sprout comes below the injury, and any tree that is badly injured will throw out water sprouts. It may be that Mr. Philips is right and that the Northwestern Greening will not throw out water sprouts, no matter how much it may be pruned or injured?

Mr. Philips: Did you ever see any?

Mr. Ferris: I saw some little, fine sprouts, I don't know whether you would call them water sprouts or not. I have seen them at the base of the tree, and I think that it is a good idea to break them off.

Question: "What apple will keep the longest, the Patten's Greening or the Northwestern Greening?"

Mr. Elliot: I will answer that question by saying the Northwestern Greening.

THE CHERRY AND PLUM ORCHARD IN SEPTEMBER AND OCTOBER.

FRANK YAHNKE, WINONA.

Not very many horticulturists in this state are fortunate enough to possess a cherry orchard, for which I am sorry, but I am glad that I am one of the fortunate. I already feast on the promising crop of next year and speculate on the amount of money the cherry orchard will bring, for the trees are full of blossom buds. How nice!—if it only would not be for the "if" that is in it, and that "if" is "Jack Frost" in blooming time. If that "if" would remain away a good crop could always be secured.

Rows of Homer cherry trees in bearing at Mr. Frank Yahnke's place.

Very little is to be done in the months of September and October in the cherry orchard when the season is normal. A bearing cherry orchard had better be left alone so as to ripen its wood to go well prepared into winter quarters. In a very dry season it might be necessary to keep up cultivation in a young cherry orchard in order to retain the moisture which is needed for them to go into winter right. However, a bearing cherry orchard I would mulch rather than keep up cultivation in.

Before harvesting the plum crop, the orchard should have good cultivation or mulching, for the purpose of retaining the moisture, which the trees are in need of in order to bring forth a heavy crop of large sized plums. The long droughts often prevailing at this time of the year are very trying to our trees, which results in the undersize of the fruit and also of the fruit grower's purse.

In September the plum orchard ripens its fruit, and a great deal of attention must be given to the harvesting and marketing of the fruit. No matter how fine this crop may be grown, if not rightly picked it will not bring the desired price in the market.

The plums should be picked before they are over-ripe, so that they come solid into market and stand up well until they can be sold. If they are in suitable packages they will bring the top price.

When plums are grown extensively for market, the picking is a considerable item and especially when the right kind of help cannot be gotten. In such a case a picking sheet can be used and is made in this manner: Take a sheet of muslin six to eight feet square, according to the size of the tree. This is slit open from the center of the sheet to the middle of one side. The slit should be made so that it can be buttoned. Each corner should be provided with a leg, for the purpose of tightening and holding up the cloth securely. Onto this shake the plums, and no bruised plums will be obtained. Also picking can be done very rapidly in this way. After the plum crop is harvested, all the decayed and diseased plums should be picked up and destroyed. By so doing we would greatly reduced the disease of plum rot.

Mr. Elliot: It seems to me that on the prairie mulching is no detriment.

Mr. Yahnke: I did not say anything about mulching for the protection of the fruit, but only to ripen the fruit crop. I do mulch sometimes in different ways. If I find trees which are tender or the roots are near the surface I mulch in order to keep the frost away to some extent and thereby save the roots. We must study nature, and nature is the best teacher to show us how to take care of a fruit tree. In every case, no matter what kind of fruit you have to deal with, if you go into the wood you will find the roots of trees are protected by this mulch to prevent the ground drying out and to prevent the frost from getting in too deep. We place our trees so the hard winter does not take the moisture from the soil or the roots. If the tree is in moist soil it will stand very cold weather, but on the other hand, the roots if buried in dry soil and wintered in the open will dry out. The roots drying out their shoots in winter time is caused by the air, that dries them. We had that result in 1884. My trees bore a heavy crop of fruit, and it did not rain from the middle of August till it froze up, and they were all dried dead next spring. Moisture would have saved them.

Mr. Merritt: I want to ask Mr. Yahnke if he does not think that plums should be picked for market, for shipping purposes particularly, instead of being shaken off on a sheet or anything else. Do you know that if you shake a plum upon a sheet, and it falls any distance, in a very large plum it will be likely to start the juice around the stem, and it will be but a very short time before that little drop will affect the other plums, and soon the basket or whatever receptacle the plums may be in will be an awful looking mess.

Mr. Yahnke: In some cases it would be better to hand-pick them, but where you have too many plums on hand you can't do it.

Mr. Elliot: Mr. Yahnke spoke of the mulch with which nature mulches every fall. That mulch remains there, and why do not the roots come to the surface? In case of drouth, where we have excessive drouth, if the mulch is not put on until spring or summer you will not get any benefit from that mulching, because the mulch takes up every little shower that comes along and the roots do not receive the benefit of that moisture. But in the other case the mulch is there all the time, and it works no detriment to the roots when a shower does come.

Mr. Martin: What kind of mulch would you recommend to put around fruit trees?

Mr. Yahnke: I use all kinds of mulch; it does not make much difference, anything that shuts off the air and keeps in the moisture. The refuse from sugarcane mills, straw, old hay or anything that will serve the purpose I mentioned can be used. Manure is good if you want to enrich the ground, and clover is also good for the same purpose.

Question: "What is the best way to destroy moles?"

Prof. Washburn: The gentleman who asked that question is laboring under a mistake; the mole does not gnaw fruit trees. The pocket gopher works on the roots and the field mice gnaw trees, but I will give a dollar for every piece of fruit tree gnawed by a mole. This subject will be treated of in the next bulletin. The moles make unsightly ridges in our lawns, but that is the only injurious thing about him.

Question: "What is the best way to destroy angle worms in the soil?"

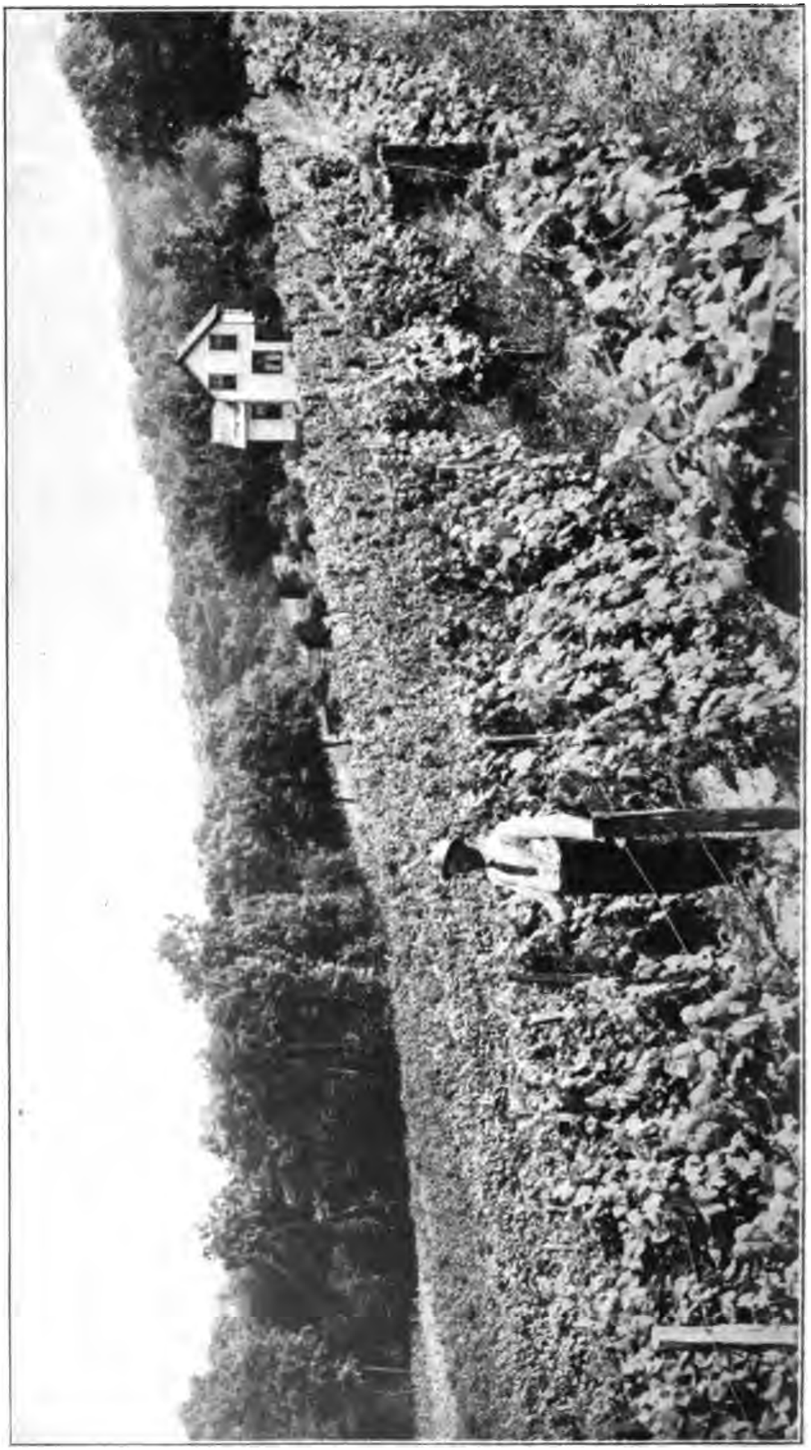
Prof. Robertson: I never found any good reason for destroying angle worms unless they became too thick on the sidewalks. The angle worm does a great deal of good for those lazy people who do not dig up their ground. Lime will kill them, but you don't want to kill them. They do absolutely no harm, but on the contrary they do a great deal of good.

THE VINEYARD IN SEPTEMBER AND OCTOBER.

GUST JOHNSON, EXCELSIOR.

As much as I would like to describe to the members of this society the different kinds of work to be done in the vineyard in September and October, I feel that I am hardly equal to the occasion. Not that I don't understand the treatment the vines should receive, but because I don't know how your vines have been taken care of in the summer, and for years before. I feel about like a doctor would feel prescribing for a case without seeing it. Now, with the best of advice you are apt to make mistakes if you should tend your vines after certain rules, not understanding when to use exceptions. I could better tell you what to do this year than next year. What would be the right thing this year; next year would probably be wrong. According to the season one has to be prepared to meet the different problems as they come up.

Now it has a great deal to do with ripening and marketing how your vines have been taken care of during the summer. In summer everything looks promising, your vines are loaded with fruit and your expectations run high, but when September comes you will hear people ask each other if the crop is going to be ripe this year. It puts me in mind of a man who had a great many vines, and he bragged of his vines. He said he had an expert look at them, and he said he never saw so many grapes and such nice ones. I told him "if that's the case you must have exceptionally good grape land." I thought I would see later about this great crop. After I had mine harvested and sold, I asked him if his grapes were ripe, and he said they had not started to color up. Then it was time they should be covered up for the winter. There is where you will be confronted with a problem which nobody can very well tell you what to do about unless he sees the vines. Are you to take them off green and receive very little for your labor or run the chance of not getting your vines to ripen their wood with the fruit. You stand a good chance of losing your vines the next winter if the frost should strike them when the immature fruit is on. Here you will have to learn for yourself what you would do and at the same time what the vines can do. Nature tries to make up for bad seasons. Sometimes it can't, and that's the time where you can by watching help nature along. There are different ways of doing it in this case. One way is to take off some of the bunches. It acts on the same principle as taking off part of a load when a horse is stuck with a heavy load. I am not in favor of gathering the grapes the way so many do. When they start in they take off the whole crop at one time. One objection to this is that they have too many grapes to market in a short time, and another is, the grapes are not all ripe. Grapes don't generally ripen all at once, unless you leave them on until part of them are over-ripe. The way I do and would advise others to do is to take off part of the crop as it ripens. This makes quite a little more work, to be sure, but where a vine



Partial view of the vineyard of Gust Johnson, of [illegible] has a hard time to ripen its fruit it has a wonderful effect if only a few bunches are taken off.

There are a good many ways of taking the grapes off the field. Some use tubs and water pails instead of using market baskets. For nice growing grapes its a good way they do in the east mostly now, which is to have a small stand in the field that will hold a few baskets. Pack them and fill them good and let them stand over night and settle before putting on the cover. If you raise nice grapes it will pay you to handle them the best way.

Next in order is the marketing. One should find out the best way and put them up in the package which sells the best in the market, because the grapes might be all right but if put up in a shape which the market don't take a fancy to, they won't sell as well, and you don't receive as much for them.

About the time you are through with your marketing it is time to commence with your pruning and covering. Most years you ought to be done with your pruning and covering in October. As to pruning, there are about as many ways as there are heads. They all get some grapes, as far as I have known, but with most of these systems there are some faults, which they sooner or later run up against, and which I can't explain in this paper. In this climate we do the best by raising our grapes as near the vines as possible. Now the way I would prune them I could not explain to make it clear for a beginner in grape growing. I could probably make it more plain if I had the vines here to show how it should be done, but then the question would come up again as to how the vines were trimmed before. I have trimmed vineyards which have been neglected, and it is impossible in one year to get them into any shape. It will take two or three years under any system to bring them back into the right shape. The different kinds have to be pruned different. Some with long vines and short spurs, others with short vines and long spurs.

The next in order is the covering. Some advise plowing them under. Now, I think that's a good way for the nurseryman, because he can sell more vines. When I used to plow mine I lost a good many vines every winter; after I covered them by hand I had no more trouble. It's all right to have a shallow furrow to lay them in but not otherwise. If you are not experienced you will injure your vines, because if you dig off the ends of the roots you uncover them and expose the ends of the roots. The main thing to cover is the ends of the roots and around the crown of the roots, making the ground higher, and keep the frost from heaving them out. The vines need only to be covered out of sight from the cold winds in the fall and March, when there is little snow on the ground.

Now if you have trimmed your vines and covered them as you ought to from the cold blasts of winter, you will feel happy in the spring when the sun shines out warm to see the small buds expand. What gives a vinegrower more hope than to see a vine, after laying dormant all winter, push out its buds vigorously in the spring? On the other hand, what is more discouraging than to see them trying to grow and finally give up in despair?

Mr. Bailliff: Have you had blight on the Delaware, and what is the best remedy?

Mr. Johnson: The only remedy I know of is spraying, and that must be done in time. Spraying helps to stop the spread of blight. If you start too late the injury is already done.

Capt. A. H. Reed: What do you spray with?

Mr. Johnson: With Bordeaux mixture.

Mr. Yahnke: What varieties of grapes do you find most profitable?

Mr. Johnson: I think the Delaware is the most profitable, taking all things together. I do not think there are any other kinds that pay better.

Mr. A. D. Leach: I would like to ask Mr. Johnson whether he has ever found it necessary to fertilize his rich soil?

Mr. Johnson: I applied a little fertilizer where the soil washed off in the clay. I have had the vineyard seven years. If you fertilize too much the vines make a stronger growth, but you get less grapes.

Mr. Ferris (Ia.): When you prune the long vines and short spurs how many buds do you leave?

Mr. Johnson: I generally leave two buds. I think it would be just as well to leave only one. If you prune too short they are liable to get too much wood. If you prune down too much they will run rampant. They are planted too close together. They have not room to run, and they break off.

Mr. Van Ness: Would it be injurious to cut a grape vine in the spring?

Mr. Johnson: I suppose it would have about the same effect it has on your trees, they would bleed.

Mr. Van Ness: In pruning the Moore's Early, do you prune it short or long?

Mr. Johnson: I prune them down short and get the biggest crop of grapes. I cut them down just like the others.

The President: Have you grown the Campbell's Early?

Mr. Johnson: Not to any great extent, although I have grown it some.

Mr. Benjamin: What kind of a trellis do you use?

Mr. Johnson: Three wires.

Mr. Martin: You mentioned the fact that mulching increases the growth of the vine. Does it not after you have developed the vine increase the growth of the fruit?

Mr. Johnson: Not as I have found it. If the vine grows too strong you get less fruit, and generally the vine does not grow much. If you keep the two balanced, the wood and the fruit, you can figure on getting a crop year after year; but you must have the wood and the fruit balanced, you must not have too many grapes nor too much wood.

THE AIMS AND METHODS OF THE AMERICAN BREEDERS' ASSOCIATION.

HON. W. M. HAYS, ASST. SEC'Y OF AGRICULTURE, WASHINGTON, D. C.

During the last five or ten years there has been a world-wide movement to take up the problems relating to plant and animal improvement. This work has gone on in the laboratory of the scientist, in the fields where the experiments are being made with field crops, in the orchards, in the gardens, in the corn houses and on the live stock farms, in the offices of live stock associations; in the lecture rooms, and in various meetings the question has continually arisen in size and in grandeur of conception. In 1899 there was called in London an international congress of plant hybridizers. This seems to have given to the question a new world movement. Later, in 1902, there was a meeting of plant breeders called in the city of New York. Last year at St. Louis a meeting of plant and animal breeders, scientists and those interested in the practical improvement of plants and animals was called. The economic scope of this question seems to be taking something of this form in the minds of the people who have investigated it: There are between four and five billion dollars worth of plants and animals produced annually in the United States, and those values can be increased from ten to twenty-five per cent with a reasonable expenditure of money and with a reasonable expenditure of labor, and possibly we may increase them much more than that. And scientific men have thought it necessary that this great problem should be taken up and solved, and solved in a general way. The meeting at St. Louis brought together the plant and animal breeders, because it was seen that the problem is a common one. The plant men were behind the animal men until the last five years. Now, however, the progress of the plant breeders has been such that they have rather eclipsed the achievements of the animal breeders, and the animal breeders are now coming to the plant breeders for whatever that is new they have to offer. This meeting at St. Louis was called for the purpose of trying to get together the classes of plant breeders and animal breeders, the practical men who make a business of growing plants and animals, and those interested in the subject from an educational and theoretical standpoint. The men that were present were mostly plant men. The meeting was called in connection with the American Association for the Advancement of Science, and the animal breeders felt it was a question for scientists and felt they did not belong there. The animal men cling to the experiments of Miles, made thirty years ago; they have not progressed much, and some of them still have the idea there is not much to learn.

This year it is expected that the association will meet at Champaign, Illinois, and an effort will be made to get together the other side and try to bring together the men interested in live stock. Now this association is not organized simply for the purpose of studying the process of breeding, but to study the propagation of pedigreed animals and pedigreed plants.

We have hardly waked up to the size of this subject from an economic standpoint, but the scientific side of getting at the facts concerning heredity is steadily coming forward since the work of Mendel was made public, and there are many now following up his method of investigation.

The American Breeders' Association was organized under a constitution that provides for changing the constitution by vote of all the members by mail after the annual meeting of the association has put the question up to the members. I might say it has a good, broad, general constitution. The officers are Secretary Wilson, who is president; L. H. Kerrick, of Illinois, is vice president; F. B. Mumford, of Missouri, is president of the animal section; and Prof. N. E. Hanson, of South Dakota, is at the head of the plant breeding section, and I am the secretary. The committees that have been projected for this association have not yet been appointed. As to membership, it is proposed to get membership from individuals at one dollar per year, life membership is given to individuals for $20, and associations are given membership for $20 to run twenty-five years. At the recent meeting of the American Association of Agricultural Colleges and Experiment Stations a resolution was passed advising all the agricultural experiment stations and agricultural colleges to take life memberships. Life memberships form a permanent investment fund.

The time is coming when experiment stations will produce new varieties of fruits, grains and vegetables that will have a greater value than those now produced, they will bring a higher price on the market, and this is the only way to spread them rapidly and bring them before the people. This is a great deal better than the free seed distribution, into which enough money is being put to create a fund to carry on this experimental work of improvement in plants and animals. This organization proposes to work with the government of the United States and with the states to promote this work in any organization.

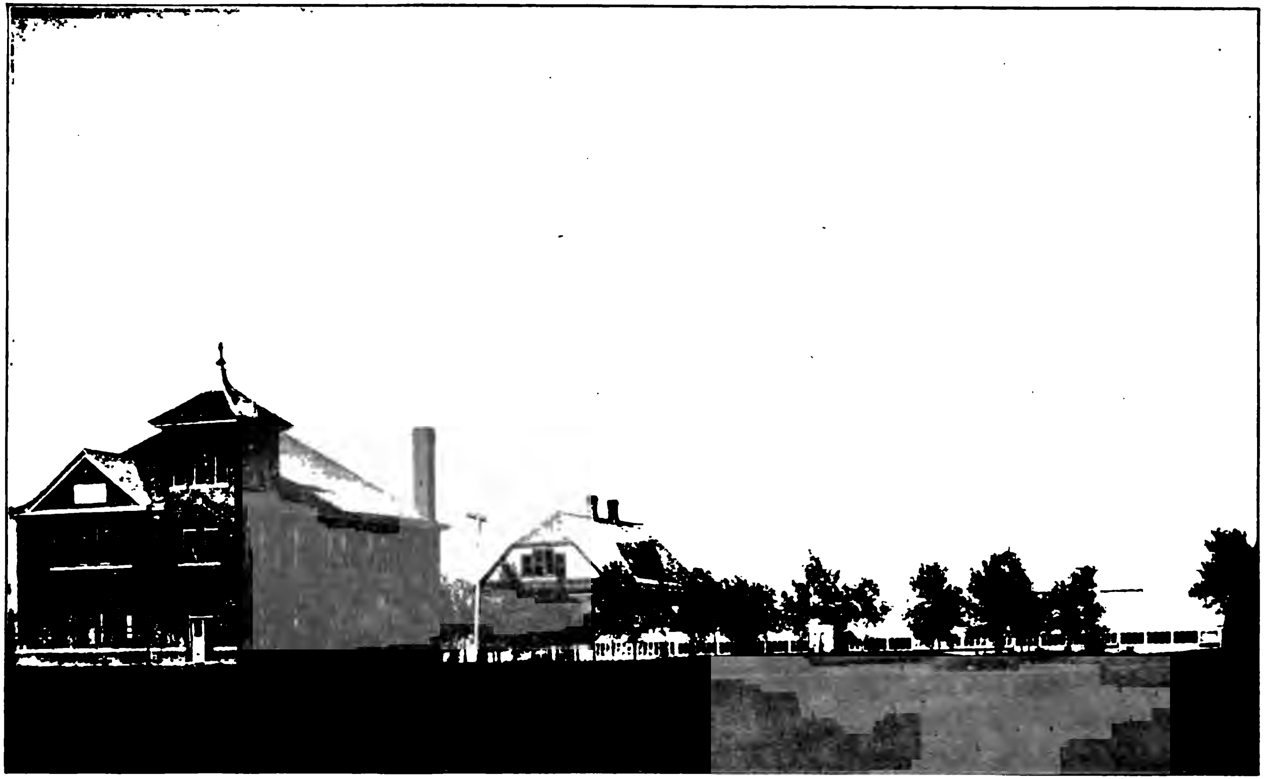
It is the desire to have the agricultural colleges, experiment stations, live stock associations and all similar organizations become members, and I am here to invite you, ladies and gentlemen, as a society to become the first association to take out a membership. I believe there are today fifteen life memberships. We need money to carry on the work of the association, and I am here to ask you to take out a membership. This organization is new, its success is not yet altogether assured, but I have great faith in it. If you will go into this association as an organization I feel that it will be a great stimulus to it.

NOTES ON FRUIT BREEDING FOR THE NORTHWEST.

PROF. N. E. HANSEN, AGRICULTURAL COLLEGE, BROOKINGS, S. D.

This is a subject I do not care to talk about very much. I prefer to make history rather than to write about it. Hence in the present stage of my work in improving northwestern prairie fruits I would sooner talk about the weather until more seedlings have been in bearing long enough to determine their ultimate value. The secretary, however, insists that I tell you something about the work, and you have all learned before this that it is impossible to get out of it if Mr. Latham insists in securing anything that he thinks will help out the horticultural report.

In handling so many thousands of seedlings my endeavor in recent years has been to get some clue to the quality of the fruit while the plants are yet small. It would greatly lessen the labor involved. No positive correlations of this kind have as yet been observed. However, the two essentials of vigor and perfect hardiness are insisted upon from the beginning. With the sand cherry, of which I have a patch of over 25,000 plants of the third generation under cultivation coming into bearing the next year, I have found some seedlings that are quite free from mildew, which so commonly affects the plant, especially in moist seasons. It is my belief that we can breed a mildew-resistant race of this promising prairie fruit. In a patch of over 6,000 native plum seedlings I insist on, as far as possible, perfect foliage as well as fruit of large size and good quality. In a patch of over three acres of strawberries of half wild, half tame ancestry, I insist on the leaves being as free from rust as possible, but it may be impracticable to do this, as our wild strawberries have the foliage affected in this manner. Whether we get our blight-proof apple remains to be seen. Any plant that will not endure 40° below zero with the ground bare of snow and come out unharmed the next spring is rejected. In disease-resistance some queer facts crop out. Some pure seedlings of wild roses mildewed while their hybrids with cultivated races were free.



View of west side of the plant-breeding building and greenhouse at So. Dakota Experiment Station.

There are three headings under which we might consider this subject: importation, exploration and amelioration. By *importation* we mean securing from other countries anything esteemed of value to test in this latitude. In pursuance of this policy I imported plants during the year from Russia, Germany, France and England. Some of these were novelties from other countries.

By *exploration* is meant hunting for desirable variations from the normal type of fruits in our native woods and prairies. The past season a trip of this kind was taken from Pierre to the Black Hills in co-operation with the division of botany of the South Dakota Experiment Station. The trip necessitated driving 250 miles by team and camping out fifteen nights in a tent. I also took two trips along the Missouri river in Campbell and Walworth counties, to the north line of the state. Some very choice plums were obtained, including one one and three-eighths inches in diameter and of excellent quality. Under propagation and cultivation this size will probably be increased. Another plum nearly as large was found on the alkali plains on the Cheyenne nearly 120 miles west of Pierre in the range country.

By *amelioration* is meant the improving of this material gathered from various parts of the world. We should take all our native plants of any value and try by crossing them with desirable imported plants to obtain new plants combining the desirable characteristics of both races.

We have a number of interesting hybrids of the native with the Japanese plums coming on, but none of these are old enough to fruit. To enumerate the numerous hybrids of tame and wild fruits already secured would hardly be of interest at this time, as I prefer to wait until they have borne fruit sufficiently to give decided indications as to their value. The plum I have mentioned as having been found along the Missouri river is, I think, worthy of attention, as it is nearly equal to Wolf in size.

In Bulletin 88 of the South Dakota Experiment Station, June, 1904, I discussed breeding for hardiness as follows: "This is the most difficult problem of the plant-breeder. The constitutional ability of a plant to endure cold cannot be changed by selection alone. DeCandolle writes in 'The Origin of Cultivated Plants:' 'The northern limits of wild species * * * * have not changed within historic times, although the seeds are carried frequently and continually to the north of each limit. Periods of more than four or five thousand years, or changements of form and duration, are needed apparently to produce a modification in a plant which will allow it to support a greater degree of cold.'

"The reader will now ask how can plants be bred more resistant to cold. This is done by crossing them with hardy species. Many examples might be given of this. In a general way, it may be stated that by crossing hardy wild fruit plants with tender cultivated ones new individuals may be produced combining the hardiness of the wild with the size and quality of fruit of the tame. A good illustration of this line of endeavor is the work of Webber and Swingle, of the United States Department of Agriculture, in producing oranges and lemons more resistant to cold than any now existing. *Citrus trifoliata,* a very small inferior fruited species from Japan, but hardy as far north as Philadelphia, was crossed with choice large fruited oranges and lemons. The remarkable results already obtained indicate that the orange belt will soon be extended far north of the present limits.

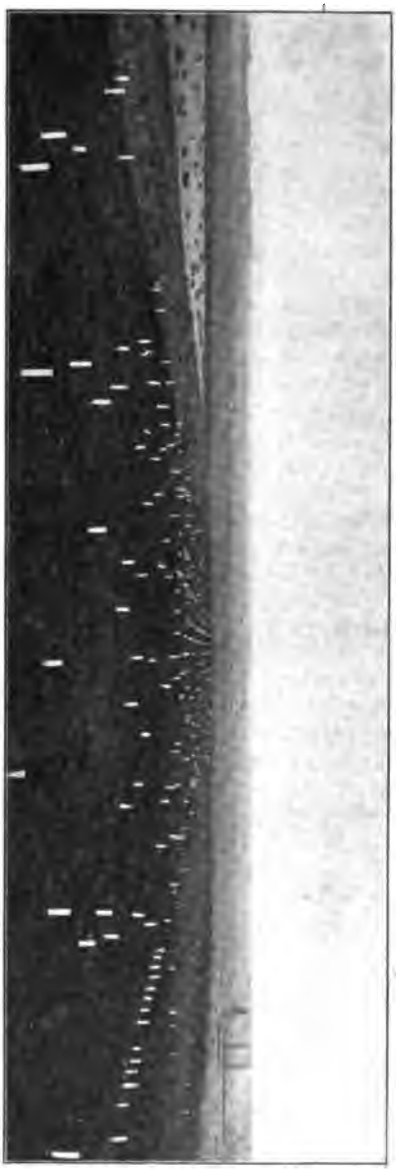
"At the South Dakota Experiment Station an effort is being made to extend the cherry, peach and apricot belt north to the Manitoba line by similar cross-breeding experiments. The present writer regards the plan as entirely feasible, although a series of years will be necessary for completion of the work. In all the fruit-breeding work at the South Dakota Experiment Station *perfect hardiness of plant* is the first consideration. Any seedling of the apple, crab, plum, cherry, sand cherry, pear, peach, apricot, strawberry, raspberry, currant, gooseberry, grape or other fruit showing inability to endure the winter without protection of any kind is at once discarded. In breeding hardy roses the same principle is followed. In the work with vegetables the endeavor is to select for as great a degree of earliness as is consistent with a fair crop."

Mr. Elliot: Is the native plum you mention like the clingstone or the freestone Wolf?

Prof. Hansen: It is a freestone, like the original Wolf.

Mr. Sahler: Which is the best?

Prof. Hansen: I think that the freestone, which was the original variety sent out as Wolf, is the better of the two. The clingstone Wolf, which has appeared in recent years, is either a bud variation or a nursery mixture. It is certainly an excellent plum, but it originated in the southern border of Iowa, in Wapello county, and I think it appears reasonable to believe that a plum we find native in our northern woods if equal in quality and size and productiveness will be better adapted to our conditions. I believe that is a safe proposition. Many of our standard varieties of plums are not early enough for the northern part of South Dakota or for North Dakota. The earliest plums on the South Dakota Experiment Station grounds last summer were some of Manitoba origin. Greater earliness must be insisted upon for our plums.


Showing western part of the fruit-breeding nursery at South Dakota Experiment Station.

There is one thing to consider, and that is, we cannot breed hardiness into seedlings. You can breed fruit seedlings by the millions and by selection bring them up to large size and good quality, but the all-essential point of hardiness must be there in the first place. Hardiness is put there by nature and is a characteristic that cannot be acquired by better selection. Here is a bombshell I intend to throw into the seedling camp. As quoted in my paper, De Candolle says at least four or five thousand years are necessary to cause any modification in the constitution of a plant enabling it to withstand a greater degree of cold. Plants have not advanced one hundred miles north of their natural limits in historic times. However, the work can be done by nature because, for instance, the box elder has been adapted to climates varying as widely as Kansas, Virginia, Minnesota and Manitoba, since southern box elders winter-kill at the north although botanically they are the same as those of far northern orgin. Many of our nurserymen now realize this and are careful in the source their tree seeds. Others find it to be too expensive to be straight and honest in these things, it is so easy and tempting to buy our seeds from milder climates. The state should help in the matter of bearing the added expense in the exploration work in order to get hardy evergreen seeds at the north.

We are too impatient with some of our orchard fruit seedling work and are barking up the wrong tree. To attempt to adapt the European plums, such as those of the Lombard type, to the north would take too long. In apple seedlings some say that seedlings from Vermont apple seed is hardier than those from the French crab. I have tried both and see no practical difference, as both were dead after the winter of 1898-9. In reality both belong to the same species, *Pyrus malus*. In the case of Vermont apple seedlings, they can be traced back less than three hundred years ago to England, Germany or possibly to France itself, from which the French crab was imported. I see no use in planting Ben Davis, Bellflower or other southern apples at the north. All of these trees date back a few generations to the milder coast climate of western Europe. There is no inherent hardiness enough for the north. There is no race of apple that will stand our winter as well as those of the Hibernal type and some other regions. If you have a dead Hibernal I would like to see what kind of treatment it received. The apple is indigenous to Asia and to eastern and western Europe, hence the various races of apple vary much in hardiness. Hence if Professor Budd had done nothing else than to introduce a hardy race of the apple for the far north it would be glory enough for any man, but he did far more than that for northwestern horticulture, and his name and fame are secure.

I have several thousand apple seedlings coming on, many of them cross-bred. If we should keep within De Candolle's law we would not go far astray for our seedling work. We should insist at all times on perfect hardiness.

Mr. Elliot: You would then plant seed from the hardiest varieties only?

Prof. Hansen: Yes, I certainly do believe in it. I think it is useless to plant seeds from the tender southern and eastern apples that are shipped north. Did not Peter M. Gideon prove this? Ten years after planting a bushel of apple seeds he had two trees left, and they were Siberian crabs. Do not lose sight of the fact that such winters as 1855-6, 1872-3, 1884-5 may come again.

E. A. Smith: Would you include seed of the Malinda apple?

Prof. Hansen: I would not advise planting self-pollinated or inbred seeds of Malinda, as it is really of Vermont origin, dating back to England. We would not know the varieties that were in the original orchard in Vermont. The Malinda came to Minnesota as a one-year seedling, as I understand. You cannot tell the pedigrees of these apples in most instances. Mr. Perkins of Red Wing has a large number of promising seedlings of Malinda, but as they come from a mixed orchard containing some hardy varieties, such as Duchess, they may have had true hardiness bred into them. What is the pedigree of the Wealthy? It may turn out to be simply a cross of Fameuse and Duchess.

Captain Reed: Have you gone back on the Siberian crab apple seedlings you advocate for stocks?

Prof. Hansen: Not in the least. The Siberian crab seedlings are native of a climate where the temperature goes to 50° below zero, with the ground bare of snow, and will stand anything in the way of climate we can furnish in Minnesota or the Dakotas or the Canadian Northwest. This region is the Trans-Baikal section of

Siberia, the home of the true Siberian crab which the Russians have found essential to use for stocks to prevent root-killing at the north. The Russians themselves long ago found out that even the hardiest apples would not be hardy at the north when used as stocks and, hence, took the Siberian crab as a foundation for their northern orchards.

Captain Reed: Do you know of any standard apple from which we can raise seedlings as hardy as those from the Siberian crab seed?

Prof. Hansen: The winter of 1898-9 proved to me that no standard apple seedling (*Pyrus malus*) will endure 40° below zero with no snow on the ground. At this same time the seedlings of the pure Siberian crab proved perfectly hardy.

Mr. Fay: Will you recommend the planting of a hybrid apple such as the Briar Sweet, which, as you know, is Siberian in its parentage?

Prof. Hansen: We are getting on the danger line there at least for the far north. From this latitude south I presume there would be no essential difference.

Mr. Underwood: What do you mean by hardiness?

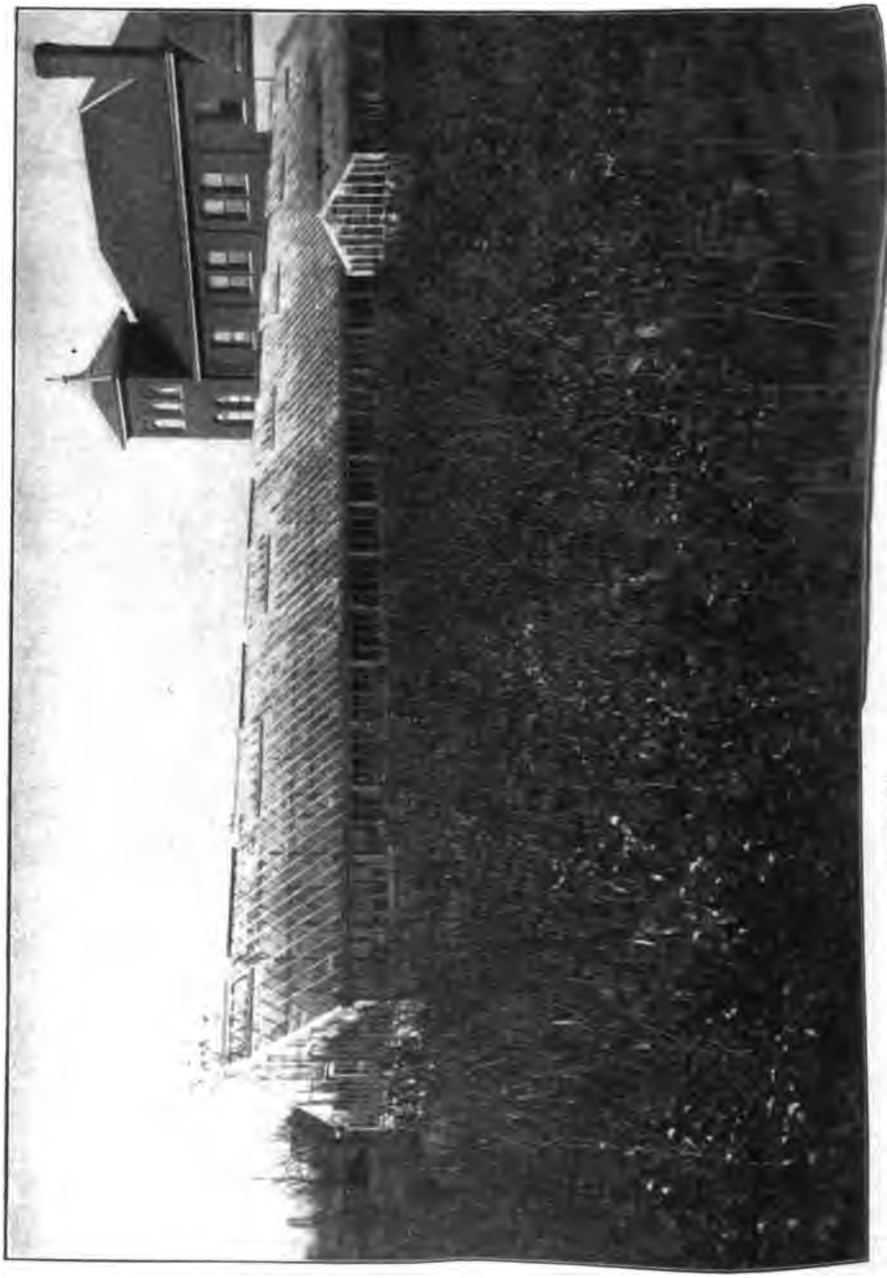
Prof. Hansen: Resistance to cold is what we usually refer to at the north. The other use of the term, meaning resistance to heat, we are not especially concerned about, except that northern trees in general do not do well far south.

Mr. Underwood: In what way does cold affect a tree?

Prof. Hansen: Sudden alternate freezing and thawing kills the live cells in the cambium layer, as is noticed in sunscald of apple trees. There is a certain degree of cold that will kill an oleander and the same temperature will not affect an apple tree. A fuchsia is killed by cold that will not harm a peony. This resistance to cold is something inherent in the constitution of the plant itself. I quit coddling my plants long ago. After the first year they must take their chances unprotected from the cold. If not they must make way for plants that will.

Mr. Nordine: Some believe that the evaporation of moisture in the limbs changes the texture of the tree. Has that anything to do with the hardiness of the tree itself?

Prof. Hansen: It is certainly true that shoots that are too watery and full of sap in the fall will not endure the winter as well as when fully ripened. Other things being equal, an apple tree that ripens its wood well in the fall stands a better chance of enduring cold unharmed than one that keeps on growing and does not ripen its wood properly. But just what hardiness is in a plant is indeed difficult to determine from a study of the cell structure. Mature wood and thick, firm leaves, I think, help, but nothing very definite has been brought out in that line. Hardiness is something inherent in the live tissues of the plant bred into the tree during thousands of years of "the survival of the fittest." A point I wish to make is that we should take this inherent cold resistance that has been developed by the action of this law and in time breed from it plants native to a milder climate.



View on southwest side of plant-breeding building showing the summer arrangement of the potted trees used in plant-breeding at South Dakota Experiment Station.

Mr. Ferris (Iowa): I have a Grimes Golden top-grafted in a Hibernal orchard. Would you discourage the growing of seeds from these Grimes Golden?

Prof. Hansen: No, I would not. I am just getting to the question as to how to get hardiness bred into plants. The only way is to breed from plants that are really hardy in the first place. Desirable qualities as to size and quality of fruit must be secured by crossing these with tame varieties. But there is one danger in obtaining crosses with tender species, and that is the lessened degree of hardiness. In that case it may be necessary to cross again with the wild, thus getting a three-quarter wild and a one-quarter tame plant. I have some plants of peculiar appearance coming on in my "incubator." A man who hybridizes widely different plants must be prepared for some queer results. It is like hatching duck eggs under a hen; some unexpected developments appear. My hybrid of the sand cherry with Prunus Simoni, an apricot plum from China, is now in its second season along with some hybrids of the sand cherry with the peach. What these and a number of other queer combinations will bear as to fruit I do not know.

Mr. Elliot: Is there any difference as to selecting the male or female for hardiness in producing hybrids, as they do with tender species?

Prof. Hansen: I think it would be unsafe with the present knowledge to insist on either male or female parent giving hardiness. I try to make the cross both ways so as to be surer of obtaining what is wanted. In a general way I prefer to use the wild plant as the female parent, as we know then there is a true hybrid if there is any change in foliage and the plants prove hardy.

Mr. Elliot: Would you select the wild variety as the female in all cases?

Prof. Hansen: The safer way is to make the cross both ways whenever possible. This is called reciprocal crossing. My endeavor is to produce choice fruits and flowers that will be hardy without winter protection in the prairie Northwest, especially Dakota. By securing native stock from both Dakotas, Assiniboia, Manitoba and Minnesota I hope to breed a generalized type that will be successful over a wide area. There are many interesting side lines of investigation that present themselves in the course of the work, but with the present working facilities—since I am working for practical results with the least possible waste of time—I am forced to forego some of these purely scientific questions and to raise a few thousand more seedlings instead. At all times, however, I endeavor to keep close to definite aims, and when once a line is laid out that will take twenty-five years to complete never to relinquish the effort even though the prospect for a successful issue appears remote. Experiments undertaken fifteen years ago are just now beginning to bear good results, and every spring I start experiments that will take an equal length of time for successful fruition, but such considerations as to the necessary time required never keep me from my fixed purpose to get the work done. If the experiment stations were not courageous enough to undertake such work, then who is to do it for the public at large? Fruit-breeding is invention work, and if we could get more men like Edison to turn their attention to fruit-breeding our problems would be solved in a few years.

THE WINTER CARE OF FRUIT TREES.

J. V. WICHLER, OWATONNA.

In preparing this paper, I have not presumed to instruct you veterans in horticulture. My purpose has been to say something which may peradventure encourage our people who are not growing fruit for their own use to plant fruit trees, make them live and prove a blessing.

If my barber had not persuaded me before appearing here to have my horns and other insignia of my craft removed you might have known, without my telling you, that I am a "tree peddler." In following my vocation from day to day, people are constantly telling me this climate is too cold for apple trees to do well. Now, I do not believe it. I think that the injury done to our trees results from cold only in the ratio of about one in ten, and the other nine-tenths may be attributed to a lack of moisture more than to the cold.

We hear much about the dry atmosphere of Minnesota, and therein lies the cause of our troubles as well as of our joys. While the dry, sunny days bring out the unexcelled color and flavor for which our apples are noted, they are, at the same time, trying on our trees. Trees do not freeze as potatoes, for instance, do, but they dry out. The sap of a tree is circulating, to some extent, both summer and winter and constantly evaporating into the air. When, therefore, in the winter the conditions become such that the root system is no longer able to send up and replenish this lost sap, the tree dries out just as it would in very dry summer weather. One reason, I believe, why some varieties are so much more hardy than others is that they contain in their make-up a large amount of water. Take a Hibernal tree that has been kept in a storage house over winter, cut it in two with a knife, and it will immediately look sappy where it is cut. It is hardy because it has the ability to carry a large percentage of water in its system; *it does not soon dry out.*

The statement that the cold does the damage is put to me, so frequently that I have, so to speak, been forced to consider whether or not it is correct. My occupation takes me each year to both the extreme northern and southern limits of the state and affords me an opportunity to observe the conditions of the trees and the methods used in handling them on almost every day of the year. My observations have led me to believe that the injury results from lack of moisture and not from cold. To prove that this is the case, I need only refer to the past winter. It was surely cold enough and cold long enough to kill the trees, if the cold were what destroys them.

During the past summer I have driven over almost all of Clay county, large portions of Becker and Polk counties in Minnesota and Grand Forks county, North Dakota. On account of the extremely cold and long winter, I had expected to find many injured trees. I observed them closely everywhere and am pleased to say that I did not find a single tree of our hardy varieties that had sustained any apparent injury. On the contrary, the apple trees fruited heavily everywhere, even where they had no shelter at all.

In southern Minnesota large numbers of trees were injured and many killed outright. Why this difference? It certainly was no colder, but while the ground was very wet when it froze in the north, it was dry when it froze in the south. In the north nature gave them a heavy mulch of snow, while in the south the ground was generally left bare. If the trees in northern Minnesota had gone through such a winter with the ground dry and bare, I dare say there would have been few uninjured trees and no fruit. Now we cannot fence out the cold, but we may conserve the moisture.

I found, on the grounds of Mr. F. W. Schlaberg, at Grand Forks, young catalpa, horse chestnut, hydrangea and other half hardy shrubs that had not been injured in the least. The catalpa had fine foliage extending to each terminal bud. Mr. Schlaberg informed me that he makes a practice of turning on the hose, saturating the ground well before it freezes, and his shrubbery always comes through the winter safely.

Consider the spring of 1903. In southern Minnesota during the time apple trees were in bloom we had constant heavy and cold rains; no cessation of them. If there had been no apples that year people would have said the rains washed off the pollen. The trees, however, fruited heavily, and the reason may be found in the fact that they came through the previous winter with the ground thoroughly wet, and, as a result, their vitality was strong; proving, it seems to me, that the setting of fruit depends more upon the vigor of the tree than upon weather conditions at blossoming time. Fully three-fourths of our home grown trees that die are lost principally on account of neglect, partially because of sunscald and blight—and the cold wave made a scapegoat for it all.

Now, an effort to prevent injury which began only with the advent of winter would be much like locking the stable after the

J. V. Wichler

John Ford

horse is stolen. To insure success we must make every move from the very beginning of the life of the tree in accordance with those methods which experience shows produce satisfactory results. If you desire to grow apples in profusion for your family, select well drained land (there is such a thing as too much water), preferably a northeast slope, but any slope will do. Never mind whether you have shelter or not. (Thousands of people imagine they have to grow a forest before they can grow apples.)

Secure Minnesota grown trees with good roots, three-year-old trees preferred. Plant deep on heavy soils, with at least eight inches of the trunk of the tree in the ground; on light soils fifteen inches is not too much. Dig the holes large enough and deep enough so that you can put six inches of rich, mellow soil (no manure) under the roots. The people who have had unsatisfactory results from deep planting are those who put the roots down on to the hard clay subsoil.

Set that side of the tree which has the limbs nearest the ground toward the southwest. Start the limbs about six inches, and not over one foot, from the ground. Train by pruning while young, so as to grow the tree as near the ground as possible. A low trunked tree is far more apt to live and fruit than one with a high trunk.

If you have no shelter, plant a shelter belt at the same time that you plant the fruit trees. It will soon grow if given proper care.

Cultivate your trees well, and during the first few years raise some hoed crop amongst them.

About the first of June put a good, big pile of new mown grass around each tree and keep it there. Green cut grass will hold the moisture better than anything else. If the ground becomes so dry that they need water, remove the mulch, dig up the ground so that it will absorb water readily, give a barrel, NO LESS, of water to each tree and immediately replace the mulch. The tree will then go through three weeks of the dryest weather without injury. By that time it will probably rain, but if not repeat the dose. The way people commonly water their trees and shrubs, a gallon or two at a time with the ground left exposed and allowed to bake, so that capillary attraction draws the water into the air almost as fast as it is put on, does more harm than good. Soak them thoroughly while you are about it and immediately mulch well. Many trees are lost the first winter after they mature a heavy crop of fruit. In maturing its fruit the tree exhausts its vitality and the wood is left extremely dry. Such loss may be entirely prevented by providing sufficient moisture during the fall. A good fruiter is worth taking care of.

If the fall is a very dry one, saturate the ground around each tree thoroughly with water, and after the water has been absorbed loosen up the ground again. Loose ground will not freeze as deep as solid ground, because the particles of air that occupy the spaces between the particles of soil form dead air chambers and act the same as dead air space in a wall. Next wrap the trunk with wire netting, or some other material that will keep the mice out, and put manure a foot or more deep and out not less than four feet, or as far as the limbs extend, around each tree, being careful not to pile it directly against the tree. This should all be done shortly before the ground freezes.

Many people have a very mistaken idea that by letting the ground freeze deep and mulching in the spring they will delay the time of the spring awakening and bloom. The fact of the matter is it does not make five minutes difference in the time in which the tree will leave out or bloom; but the tree that was heavily mulched before the ground froze will show much greater vitality, bear the most fruit and live longest. The mulch should be removed as soon as the leaves begin to appear on the trees in the spring. Young trees are frequently broken down by snowdrifts. To avoid this gather the branches into a close bunch and tie with binding twine, and set a few poles up around the tree and tie to them to hold the tree in position.

Many apple trees are destroyed every winter by rabbits and mice. The man who will allow rabbits to eat his trees must be hibernating or lazy and does not deserve any apples. The wide-awake man will eat the rabbits fried a nice brown and served with apple sauce; however, a coat of whitewash, the lime thinned with a solution of glue and enough carbolic acid to make it smell quite strong, will spoil the flavor of the bark for both rabbits and mice; in addition, it will prevent sunscald and destroy the eggs of insects that may be deposited in the crevices of the bark.

By following such a course all our apples of the first and second degree of hardiness may be successfully grown anywhere in Minnesota, and the loss from winter injury will be insignificant. The reward in dollars and cents, to say nothing of the pleasure and aesthetic value, will be as generous as from any other branch of farm work.

Mr. C. Harrison (Neb.): I think this is one of the most important subjects that has come before this society. Down in Kansas a great many orchards went into winter quarters, and they died. One man put a barrel or two of water around each tree, and he saved his trees. In Nebraska you let a tree freeze dry, and it injures it. Twenty-one years ago we had a very dry winter, when we were living in Illinois, and nearly all the orchards were wiped out. We cannot lay too much stress on this: if we want to save our orchards we must let them go into winter quarters with wet feet. I spent a few years myself in growing apples, and I know that apple trees need wet feet in winter, and that is what keeps them alive and in a healthy condition; but you let a tree go into winter quarters with dry feet, and it is bound to die. A tree in summer time is a pump. It needs an immense amount of water, and it will pump the ground dry all around it, and if it is not replenished it cannot possibly go through the winter. The safest and the best way to conserve the moisture is to have the trees in a depression and put two or three barrels of water around them. At the same time you give the tree water give it cultivation, and the cultivation will do something towards conserving moisture.

Capt. Reed. You can hold a tree back by mulching. I know you can hold it back by mulching.

Prof. Hansen: Yes, fifteen minutes. (Laughter.)

Capt. Reed: The sun has some influence in starting the sap, because a tree is injured after the sap starts too early; but a heavy mulching will prevent the sap from starting too early and will hold the tree back one or two weeks.

Prof. Hansen: That has been tried many times, and it has been shown that you cannot keep the blossom back fifteen minutes by mulching, but if you delay mulching until it is frozen you can keep the frost in in the spring.

Capt. Reed: I never mulch until the ground is frozen.

Prof. Hansen: If the mulch is so deep that it will keep the frost in the roots the tree is badly injured and sometimes killed. The only way to keep back the sap is to cover the whole tree. You can keep a strawberry back if you cover the whole plant, but you cannot cover a whole tree. It will start as soon as the air is warm enough, and the leaves will come out.

Mr. Radabaugh: The question regarding the possibility of holding a tree back came up here three years ago. I made a trial here in the city, and on the eighth day of May the plum trees in the city and country were in full bloom. I tried this experiment of mulching upon one plum tree in the yard, and I held it back until the 17th. That was actually the case, but whether it was good for the tree or not I don't know. I also had good success in holding back gooseberries. I think this idea that mulching will not hold trees back is a mistaken one. I mulch in the winter time; I put on a heavy mulch, and the tree will do just as I stated.

The President: When I was out with the Farmers' Institute as horticulturist six or seven years ago this question used to come up at nearly every institute, and I would answer it practically as Prof. Hansen has done, not from personal experience; but I made up my mind I would try an experiment on my own place, and the first winter I was out with the institute afforded an excellent opportunity. The ground that winter froze very deep. I went through my orchard and mulched alternate trees of the same varieties, which is the only proper way to make the experiment. I mulched one Whitney very heavily and left the other unmulched, and I did the same with the Wealthy, and it seemed to me I conducted the experiment in as nearly a perfect manner as it possibly could be conducted. I watched the outcome of the experiment with great interest, and the result was they all bloomed at the same time, both those that were mulched and those that were not mulched. The great difficulty with the experiments reported is that the experimenter usually mulches all his trees and makes a comparison between his trees and those of some other orchard that were not mulched. Owing to the variety or to the difference in location there may be a difference of a week in the blooming period in some of our orchards. If Capt. Reed will mulch alternate trees of the same variety, I shall be very much astonished if he does not report different results next winter at our meeting.

Capt. Reed: I wait till the ground is frozen before I mulch my trees.

The President: I mulched in February. I mulched with material taken from our straw pile. I might state it was only a few days before blossoming time that I made an examination of the ground.

Mr. Radabaugh: You have got to wait till the latter part of winter to mulch. I waited till the snow began to melt on the ground, and then if the mulch is put on it has not time to thaw.

Prof. Hansen: Did you mulch your whole orchard or only a part of it?

Mr. Radabaugh: I had only a few trees, but all the other trees were in full bloom on the 8th of May, while this one that I had mulched did not begin to bloom until the 17th.

Mr. Long: Those of you who were present or who read the report for that year will remember that the late Prof. Pendergast related an instance of a rosebush, which was growing at his home in New Hampshire, pushing the ends of some branches through a broken window light into the kitchen. At the time the ground was frozen to a great depth and was covered with several feet of snow, yet that part of the rosebush that was subjected to the warm atmosphere commenced to leaf out and form flowering buds. In that case the conditions certainly could not have been more favorable to effect a possible retarding of the growth.

Prof. Green: I have had quite a little experience along the line mentioned by Mr. Wedge. I think Prof. Pendergast was right. I am very familiar with the cold grapery. The cold grapery is used for the purpose of forwarding grapes. The vines are planted outside and are led through the wall into the house. I know this, and it is not a matter of doing it once or twice, but you start the tops of the vines into growth without any respect to the condition of growth on the outside. These vines brought through the wall from the outside to the inside of the house steadily started into growth, and they made quite a growth before the roots thawed out. If you cut twigs of the pussy willow bush you will have it in flower in a few weeks, and hazel bush in ten days, without any regard whatever to the condition of the roots. I think it is assumed by most horticulturists and botanists that when the conditions are right the buds will start without reference to the condition of the roots of a plant.

Mr. A. K. Bush: In regard to the matter of applying water to the roots of the trees, one of the best methods is to use one or two pieces of porous tile, two or three inches in diameter, placing one or two, as you may see fit, about the roots of the tree. Water can be poured through them directly to the roots of the tree, and a little water applied in that way goes a great deal farther than a large quantity applied on the surface. If it is applied in this way it can be done at a cost not to exceed a cost of a cent or two daily, and I find it works splendidly. Those tiles are shipped in carload lots and cost about two cents apiece.

HOSPITALITY.

(Remarks by Mr. Harrison after the reading of a paper of above title by Miss Margaret J. Evans published in the May No.)

Mr. C. S. Harrison (Neb.): I was charmed with that delightful address. I had the thought in my mind for some time that hospitality was going to be one of the lost arts. I know something of the needs of hospitality. I used to travel in this country in 1857, and if I could lay my wet coat in a corner of the house and lie down upon it I thought I had good entertainment, and if the people shared their johnnycake with me I thought I fared better still. The great trouble is that people go to too much trouble. I tell my wife to put on an extra plate and let the visitor eat what we eat, but she must make preparation as though she were going to feed an army or entertain a king. But then, she can't help it, she was born that way. When the minister comes there is a great deal of fuss made, but I tell you he would be a great deal better satisfied with a meal of bread and butter than with such an elaborate display. Once a minister went to see a widow who had a nice flock of children. She thought because it was the minister she must put forth her best effort to entertain him, and she concluded she must have a pie, but she had only one raisin. The children were instructed that they must not ask for the piece of pie with the raisin in. The raisin was put in one corner of the pie, and after a while with a good deal of flourish and preparation the minister was invited to sit down to the table. The children were on their very best behavior until they got to the pie. When the pie was cut there were four children with mouths agape and eyes wide open to see what became of that raisin. When the minister was helped to his piece of pie, there in plain sight was the solitary raisin, and the children all shouted in a chorus, "He's got the raisin!" (Laughter and applause.)

PLANT BREEDING AS A PRACTICAL PURSUIT.

PROF. C. P. BULL.

(A discussion following the above paper. See page 318, Aug. (1905) Horticulturist.)

Mr. Wyman Elliot: I would like to ask Prof. Bull a question: How can we fix the nature of corn?

Prof. Bull: By selection, by having a number of individuals from which we may select. In a seedling apple you are comparatively more or less limited, which is not the case with corn. In the apple we have a tree with a number of branches, and the branches all bear the same kind of fruit. If you want to fix the type of a certain seedling you have only one seedling, but in the case of corn you have a number from the same stalk, and from that stalk you select the seed which appears to be the most uniform. There is a certain inherited tendency in the production of any line of fruit, and this will give you an advantage wherever you are in a position to take it.

Mr. Elliot: Do you think in breeding by grafting, budding, etc., we can change the varieties very much?

Prof. Bull: There may be a relation between the stock and scion which has an influence. I am afraid I cannot answer that question satisfactorily.

Mr. Elliot: Well, do you think it might be done?

Prof. Bull: I think it might be done in a very slight degree. I am not experienced along this line. Prof. Hansen could answer that better than I.

Prof. Hensen: There are some apples that have been under cultivation for hundreds of years without having any change occur. Take the Lady apple; it is the same now as it was several hundred years ago. On the other hand, we may have a variation in three years, a bud variation. As Mr. Ansel Gideon said, the Wealthy has changed under cultivation. I suspect the Walbridge is a variation, something of a bud variation. We cannot tell of any changes unless the variety bears. I have planted white potatoes and red potatoes and got new varieties in that way. When we see the Ben Davis apple seedlings come up, any number of them resemble the Ben Davis, and we have Wealthy seedlings that very much resemble the Wealthy. The apple that is raised in considerable quantities is apt to resemble the original, just as the Wealthy is apt to resemble itself when crossed with itself. You can do that on a small scale by putting a paper sack on a Wealthy before it sheds its pollen, and you are apt to get something that resembles the parents, and for two or three generations you will fix the type. You cannot do it to any great extent, it is too big a job. You would have to have each tree by itself, you would have to keep the bees away, and you would have to keep the trees away from any other place. So we prefer to get the same results by budding or grafting.

Mr. Ferris (Iowa): I would like to say a word in regard to the work Professor Hansen is doing. I do not believe you are aware of the work he is doing. He has commenced a wonderful undertaking. He wants to create a new northwestern pomology.

You may get an idea of what he is doing when I tell you he has 250,000 seedlings and 40,000 sand cherries. The professor is still a young man, and you are going to hear from him. I have been meeting him since he was associated with Prof. Budd, and I am very glad to meet him here. I want to predict that you will yet hear great things from Prof. Hansen and that he will become the Downing of the northwest.

Capt. Reed: I would like to learn a little more about the sand cherry. It appears to be recommended to graft upon. I would like to hear from Prof. Hansen upon that point.

Prof. Hansen: The sand cherry is a child of the sun, "Minneopa," the Indians call it. It is a native of the plains. If you kill it I will give you a chromo. It is a bush. I am not recommending the sand cherry for Minnesota conditions. It does best on soil where the humidity is not so great, I find. I have grown some sand cherries seven-eighths of an inch in diameter. It is not really a sand cherry, it is a sun cherry. It is a type by itself. I do not recommend it to any one; it is simply in a state of evolution at present.

Mr. Martin Penning: Don't they rot badly in wet seasons?

Prof. Hansen: They may in Minnesota, but not as you go west. It is a plant that changes very readily by selection, and the third generation of plants averages much better than the first generation. It is a plant that can easily be mixed with other plants. I look for it to produce a race of bush fruits that will be of great profit in the farmer's garden.

Capt. Reed: At what age will it bear?

Prof. Hansen: Three years from seed.

Mr. Ferris (Iowa): Is it not true that the crop is very easily injured by a late frost?

Prof. Hansen: I have not noticed that. I am not talking of the sand cherry that goes from the east to the far west; I am talking about the Sioux Indian type.

Mr. Older: Just a moment in regard to that sand cherry Prof. Hansen is working with. It is a product of the west, where it is subject to very cold weather, and it is absolutely worthless in this part of the state. Prof. Hansen has been growing some from seed produced from selection and something very nice. He sent me some of them this last year, a product of some of those from which he saved the seed, and some of them were as nice almost as the Early Richmond for eating purposes. I think in the near future we will have a bush cherry that will be very desirable in every respect.

Secretary's Corner.

BAD BLIGHT.—Seth H. Kenney, in a letter under date of July 24, says, "I think when the damage is fully known from blight, the year 1905 will prove the most destructive in at least twenty-five years. It is so in my case. I think the younger trees are hardly as bad, but all show up badly."

CHERRIES IN MINNEAPOLIS.—Not many cherries are ripened in the city of Minneapolis, and it is worthy of note that on the place of O. F. G. Day, at 2319 Lyndale Ave. N., there is a Vladimir cherry tree, now three years planted, that ripened this year a nice crop of two quarts of cherries.

THE EXPERIMENT STATIONS OF THE CANADIAN NORTHWEST.—Mr. Wyman Elliot and the writer visited, in the middle of August, the experiment stations at Indian Head, Assiniboia, and Brandon, Manitoba. It was a delightful trip and, we believe, profitable as well. If space permits, something may be said as to these visits in the October number.

EXPERIENCE IN PLUMS.—I have been experimenting and cultivating plums about 40 years. In that time I have missed only four crops. Have now about 1,000 trees, of nearly 100 varieties, the principal ones being Surprise, Brittlewood, Free Silver, Ocheeda, Rollingstone, Hunt, Gaylord, De Soto Wyant, Stoddard, Hawkeye, Comfort, Wolf, etc,"

O. M. Lord, Minnesota City.

YELLOW TRANSPARENT FROM SOUTHERN MINNESOTA.— A box of very beautiful Yellow Transparent Apples came to this office August 16 from C. H. Meyer, Fairmont, Minn. Mr. Meyer reports a large number of varieties in his orchard, and we may expect from this to see an exhibit from his place at our meetings soon.

EXTRA EARLY PLUMS.—R. E. Hynson, of Mankato, sent to this office on August 16 a package of ripe, red plums of medium size and fair quality, the earliest, as he reports, in that part of the state. The tree is found to be perfectly hardy and a prolific bearer. The secretary would be interested to hear at what earlier date than this plums have ripened anywhere in the state and the name of the variety.

NOT INTERESTED IN THE TREATMENT OF DISEASES OF PLANTS.—Here is food for thought: "I will say for myself that I am not interested much, if any, in the methods of treatment of plants for disease. I believe I can best fight plant disease by increasing plant vitality. I am trying to learn under what conditions plant energy can be augmented. The plant is competent to treat itself for disease under renewed conditions of vitality."

PLUMS IN SOUTH DAKOTA.—Prof. N. E. Hansen, horticulturist at the South Dakota State Experiment Station, has recently, in May, 1905, issued a bulletin entitled "Plums in South Dakota." It constitutes quite a full treatise on the subject of plums and plum culture, and while designed especially for South Dakota is equally valuable to our own state. The bulletin contains eighty-eight pages and is well illustrated with photographic reproductions of a large number of varieties of plums, mainly Americana, and other plates of equal value. It speaks of the classification of plums and gives descriptions of the varieties generally planted in the Northwest, as well as of many newer and less known sorts. In sending for this bulletin address Prof. N. E. Hansen, Brookings, S. D. and ask him for bulletin No. 93.

QUESTION ABOUT SEEDLESS ASPARAGUS.—"Will some of your most experienced asparagus growers please tell us to whether staminate, or seedless, plants are not much the most productive and profitable, and if they are how best to get our asparagus beds all seedless plants? Can you profitably divide up seedling plants? If this is practicable, it would seem the quickest and surest plan." F. K. Phœnix, Delavan, Wis.

QUESTION.—"Is the Minnetonka apple a good variety and is it hardy in our climate?" This question in varying form is frequently asked of the secretary, and he is unable to give a satisfactory answer to it. Have any of our readers what is claimed to be the Minnetonka apple tree growing and fruiting, and if so, what is the character of the fruit? Is the tree a prolific bearer, and does it seem to be hardy? Please answer, any one who can, these questions briefly for the benefit of our readers..

A PROLIFIC SEEDLING GOOSEBERRY. — Mr. Wyman Elliot reports that 314 feet of small plants in the nursery row of the seedling gooseberry he has originated and named the "Carrie" yielded eight and one-half crates of twenty four quarts each. The fruit sold for $2.25 a case. An acre of gooseberries at this rate would bring over $400.00. Mr. Elliot is growing a great number of seedlings of nearly all kinds of Minnesota's hardy fruits, and we may expect to hear from him as to other valuable new horticultural productions.

NEW STRAWBERRIES BY THE ACRE.—Prof. N. E. Hansen, horticulturist at the South Dakota Experiment Station, Brookings, S. D., writes that he has a strawberry patch of over three acres of new seedling varieties, some of which show such promise that he has already sent them out to a few places as "South Dakota Nos. 1 and 2, etc.," for further trial. The fruit is of good quality, fair size and bears well without mulching. The professor is earnestly seeking to develop something hardy under the trying soil and climatic conditions of his region.

HOGS IN THE ORCHARD —Edson Gaylord, of Nora Springs, Iowa, has had the experience of a lifetime, being now well advanced in years, in trying to develop orcharding in northern Iowa. Hear his conclusions on this one important point: "For many years I have fenced my orchard pig-tight, so I can let the pigs in or shut them out, as it appears to be best. I gather my best apples and leave the poor ones on the ground and then let in the pigs every day or every other day. All the defective apples are eaten at once by the pigs, and no insect has been able to find an abiding place in any corner of my orchard. I have never sprayed and never expect to, having found a better way."

SEEDLING STRAWBERRIES FROM THE RED RIVER VALLEY.—A box containing seedling strawberries of unusual size and packed in many large strawberry leaves, came to this office by mail June 6. They were from the garden of Mrs. N. Hoss, of Fertile, Minn. She says in her letter to me, "This is my first experience in growing seedling strawberries. Three years ago in July I planted some seeds of the Warfield strawberry, sowing them in a box, where they came up nicely. A year after we set out the plants, and they grew very large that summer. We removed all the blossoms as they appeared that season, and this spring they were almost loaded with the largest and nicest berries you ever saw." This is an encouraging report to any one who is interested in propagating new varieties of fruit. It is a pleasant pursuit in which every horticulturist might well engage as opportunity permits.

MEMBERSHIP IN THE AMERICAN BREEDERS' ASSOCIATION.—Referring to the article appearing in this number as to the "Aims and Membership of the American Breeding Association" by Hon. W. M. Hays, formerly of the Minnesota Experiment Station and at present Assistant Secretary of Agriculture, our readers will be interested to know that the Minnesota State Horticultural Society has taken out a membership in the association referred to, having paid the required fee of $20.00, for which it is understood that this membership is to run twenty-five years, making its expiration in the year 1930.

DEATH OF MRS. A. W. SIAS. The Punta Gorda Herald, of Florida, announces the death, on July 23, of the wife of Mr. A. W. Sias, one of the oldest life members of this society and now for many years a resident of southwestern Florida, at Harbor View. Mr. Sias and family removed to Florida from Minnesota twelve years ago, where they have since resided. He was for many years a nurseryman in Rochester in this state, a faithful and most earnest member of this society, and the work that he did for the Minnesota Horticultural Society in that early day did much to place it on the enduring basis which it now occupies. The sympathy of our members go out to Mr. Sias in his affliction.

TWO OF OUR EX-SECRETARIES.—Oliver Gibbs, long time member of our society, former secretary and now well along in the seventies, materially recovered his health from a couple of winters and summers spent on the eastern coast of Florida, where he has enjoyed himself much growing a lot of fruits and vegetables that are beyond the capacity of Minnesota horticulturists. Mr Gibbs is at this time at his home in Prescott, Wisconsin, and is likely to stay north until after the coming annual meeting of our society, at which time we expect to greet him in person.

Charles Y. Lacy, secretary of this society for five years, from 1875 to 1879 inclusive, now of Long Beach, California, dropped into the office unexpectedly a short time since, and for an hour we renewed old acquaintance. Side whiskers and some of the changes which come with maturity made it necessary to ask for an introduction at the outset, but pleasant converse soon brought back to recollection this old time member and strenuous co-worker of thirty years ago, and we were immensely glad to meet him. Mr. Lacy is still in the prime of life and we hope to retain his name on our honorary life list for many years yet.

FRUITS IN NORTH DAKOTA.—It is six years since we planted large apples, and about fifteen years since we planted crabs. They have all done well with us. We have had large apples for the last three years, as some of the Hibernals started to bear when they were three years old. It is the hardiest of all apples for the north. Duchess, Charlamoff, Yellow Sweet, Tetofsky, Patten's Greening—I have all of those named bearing fruit. We have about three hundred trees growing and are planting more this spring. Of plum trees, the Forest Garden is good. De Soto don't get ripe here nor others that I have tried. Of crabs, Whitney, Briar Sweet, Minnesota, Transcendent, Martha, Virginia are some that I have. Of raspberries, we have Turner, Black Hills and Cuthbert. These don't have to be laid down and covered as they are hardy enough without. As to cold, well, we are in North Dakota, the coldest state in the United States. Gets down to forty sometimes. Thirty-eight was the coldest last winter. We have timber on the north and west of us. Have been here twenty-six years in April. Wm. Hurtt, Hoople, Walsh Co., N. D

"THE CAUSE AND PREVENTION OF PEAR BLIGHT".—This is the title of a little six page bulletin written by N. D. Waite, of the Division of Vegetable Physiology and Pathology, United States Department of Agriculture. He considers therein the subject of apple and pear blight—giving the life history of the microbe thought to be the cause of it, conditions affecting this disease and treatment for it. This interesting bulletin is very practical, and our readers will get the latest scientific thought on this subject by consulting it. A copy can be had, undoubtedly, by addressing the Division of Publications, Washington, D. C.

MEDALS AWARDED ON FRUIT AT THE WORLD'S FAIR.—The following item came to me inclosed in a letter from the secretary of awards at the St. Louis World's Fair under date of Aug. 11.

"The Medals of Award are being struck at the Government Mint at Philadelphia for the Exposition under Special Act of Congress. Dies have been prepared in the highest degree of the engraver's skill. The alloy which enters into the composition of the medals was made especially for the Exposition after samples were submitted and passed upon by expert medalists. The striking of the medals, notwithstanding the resources of the Government for this kind of work, must proceed carefully and slowly to insure perfect results. As the medals are received from the Mint they will be distributed by the Exposition in accordance with the awards, without cost to the recipients."

INTERNATIONAL JURY OF AWARDS.

This may indicate that the medals are soon to be delivered.

STORE FRUIT FOR THE WINTER MEETING.—Reference was made in the August Horticulturist to the fact that the usual arrangements for storing fruit for the winter meeting of our society with A. Booth & Co. of Minneapolis have been continued this year. As it is our purpose to make the fruit exhibit at the coming winter meeting the finest and best of all the exhibits the society has put up, it is necessary that our members should make a special effort to the furtherance of this end. Do not fail to gather the very best specimens of all the varieties you are growing, and where they are of early ripening stock that will not keep at home send them to the cold storage as provided in this city. Shipping tags have been printed to use for this purpose and will be sent out by the secretary in any number required. Special attention should be paid to the saving of seedling apples, as the usual premiums will be offered for this class of fruit. The secretary would be pleased to hear from members contemplating making exhibits as to the probable extent of the exhibit and the number of varieties to be shown.

PACK YOUR APPLES RIGHT.—One of the leading commission men here suggests that I say a word to our members as to the great importance of sorting and packing apples carefully, putting them in neat packages and handling them in such a way that they will get to market in good condition. Many of our apple growers, and especially those of comparatively little experience, are very careless in these matters, and as a result their fruit when shipped to distant points, and even when sold at home, brings them very little profit. Put the good apples in a package by themselves. The poor ones should never be shipped, but marketed at home or turned into cider. New barrels should be used and the top and bottom layers of fruit placed stem up to make a neat appearance. Don't make the short-sighted mistake of putting smaller apples in the middle of the barrel. You are sure to be found out and your market injured thereby. Place on each head of the barrel the name of the variety, as well as your own name and address. Strict attention to these details will give material advantage in the way of better prices and quicker sales.

A "NATIONAL COUNCIL OF HORTICULTURE"—has been perfected as an association under this title, and they have issued a circular setting forth its objects as follows:

"To fraternize and concrete the horticultural interests of North America.

"To consider the questions of public policy and administration, which are so common to these organizations.

"To act as a bureau of publicity in the interests of reliable information pertaining to horticulture in its broadest sense."

The membership is to consist of two delegates elected or appointed by each national horticultural society, with nine delegates at large. We note the name of Prof. S. B. Green among the first list of delegates at large. As understood, it is expected that delegates from this council will be in attendance at the meetings of the various national horticultural associations, including the American Pomological Society, the American Civic Association, the American Breeder's Association, etc. A preliminary organization for this council was effected at the World's Fair at St. Louis, last year.

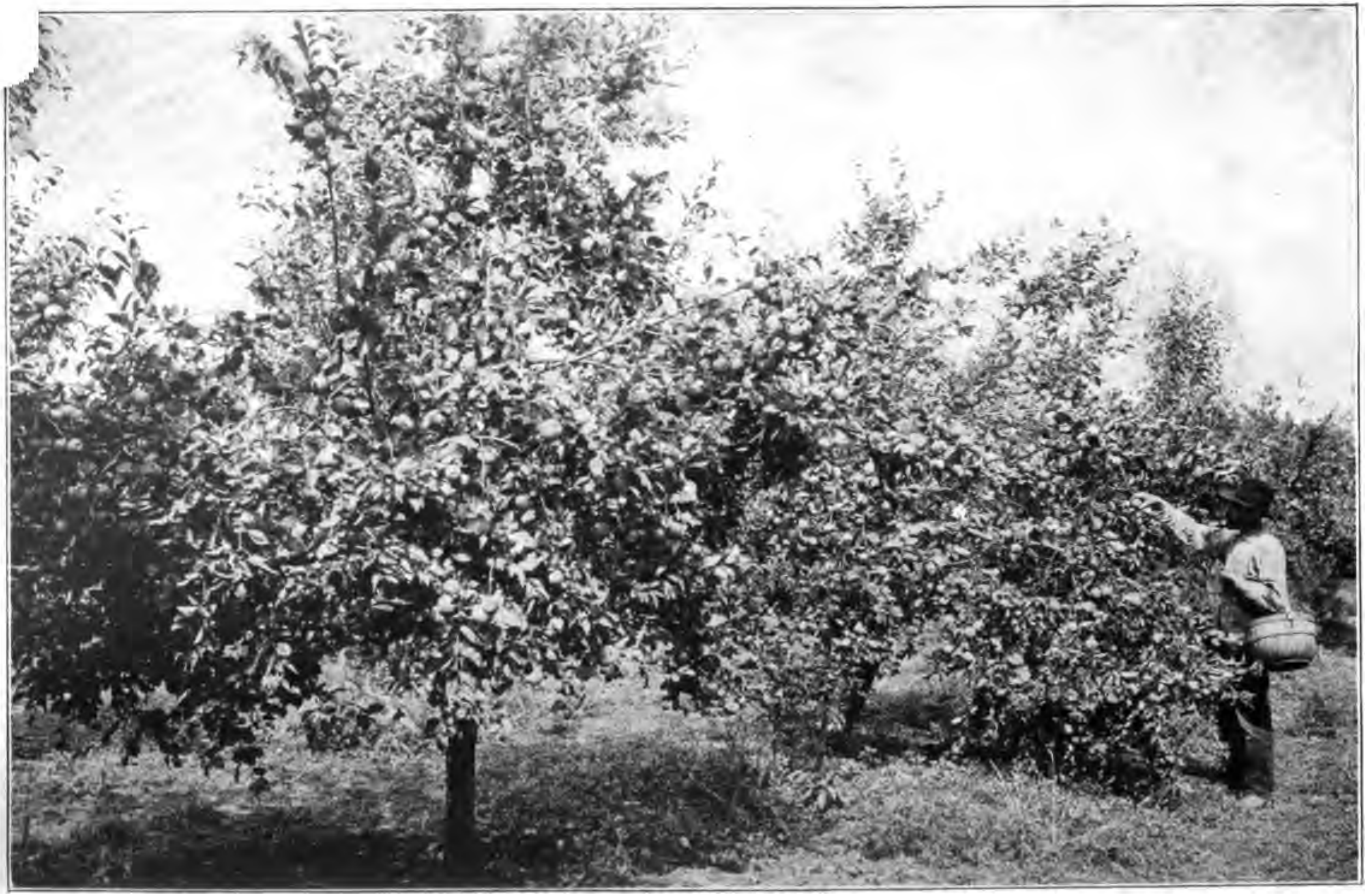
TRANSPLANTING LADIES' SLIPPERS—Any of our native lady slippers including the yellow and pink forms, may be quite easily transplanted at almost any time in the year if taken up with good balls of sod. When they were in flower this year I transplanted about one hundred of them very successfully. They were taken up with balls of sod from a rather pretty meadow. were carried in a wagon about sixteen miles, and yet did well. The best time to move them is probably in the spring, just as they show up in good shape, but as they are much more conspicuous just as they are coming into flower that it is a good time to move them, provided, as stated above, they can be moved with a piece of sod. I should think it perfectly safe to move them now or later in the season, provided they are moved this way. If you wish to shake the dirt off them, or the dirt is liable to fall, I should do this early in the spring, but to do this successfully they should be marked now, so they may be found easily. The soil into which they are transplanted should be of a fibrous nature and especially prepared for this purpose. I also think it desirable to put them on the north side of a building or somewhere where they will get a little shade—any way to avoid especially hot locations and southerly slopes. PROF. SAMUEL B. GREEN

FRUIT EXHIBITS AT THE COMING STATE FAIR. Under the management of Mr. J. M. Underwood, who is this year in charge of both the departments of agriculture and horticulture at the Minnesota State Fair, there has been considerable change made in the arrangement of exhibits in Agricultural Hall and in some measure they affect the horticultural department. The change of most importance to horticulture is the construction of two new tables which are to be provided with mirrors behind each one of the eight shelves which constitute the table. These tables are constructed on the same plan as the old ones except there is a greater distance between the shelves, the risers having been increased from about three inches in the tables now in use to about six inches in the new ones. These new tables, we understand, are to be used to exhibit thereon the single plate entries of apples. Exhibitors of this class of entries will see the necessity of being unusually careful in selecting specimens that are entirely free from blemishes, as the back side of the fruit exhibited on these tables will show as plainly as the front side. This innovation is a legitimate step towards perfection.

The addition of first and second premiums to the regular pro rata premiums on collections of fruit should be noted, as it insures to the exhibitors who receive the two highest premiums for collections $10 and $5 respectively in addition to a share in the pro rata premium.

A full exhibit of seedling apples is especially desired, and it will be noticed that a premium is being offered this year for summer varieties of seedlings that can be kept in cold storage until the fair opens if necessary.

With the comparatively light crop of fruit and plenty of rain to give it size, and an average season as to the time of maturity, it ought to make the exhibit this year one of the finest that has ever been set up in the horticultural department of the Minnesota State Fair.



TYPICAL SUCCESSFUL MINNESOTA ORCHARD TREES—ON GROUNDS OF JEWELL NURSERY CO., LAKE CITY.

THE MINNESOTA HORTICULTURIST.

VOL. 33. OCTOBER, 1905. No. 10

THE SUCCESSFUL ORCHARD.

E. A. SMITH, LAKE CITY.

The making of an artist begins a hundred years before he is born; the making of a successful orchard begins before it is planted. To make an orchard successful, it is necessary to intelligently care for it from the time of planting to the marketing of the fruit.

Trees should be planted that are grown on hardy roots. Especially is this true in exposed locations where the ground is unprotected and dry. A house should be built upon a good foundation; a good tree cannot be successfully grown unless it has a healthy, hardy root.

Having secured a good, thrifty two or three years old tree, how deep shall we plant it? Upon tree planting the opinions of horticultural doctors vary. A circular of instructions issued by one of the largest nurseries in the south states that a tree should never be planted deeper than it stood in the nursery. This depth may do for the south, but on dry soils in the north it is much better to plant deeper, for the purpose of getting the roots down where they will not be easily dried out; and if planted say twelve inches deeper than in the nursery roots will often be thrown out from the body of the tree, which will help to fortify and increase its hardiness, so that in course of time the tree may be established upon its own root—a condition that is *most desirable*. A large percentage of failures in orcharding is due to a lack of moisture, and, this being one of the prime requisites for all kinds of vegetation, it is necessary to conserve it as much as possible, especially in those sections subject to drought. Low places, however, should be well drained, and in all cases the surface of the soil should be kept loose and not allowed to bake or crack.

To produce a good crop of corn we cultivate the ground and enrich it, and the orchard should receive no less care. It will do its duty by us if we do our duty by it. Shallow cultivation is the best way to obtain moisture. Just how much, or how little, or how late, to cultivate depends upon the season and its varying conditions. It is necessary to cultivate one's judgment in the matter. After each rain, as soon as the surface has dried off it should be stirred. This helps to retain the moisture and leaves the soil in good condition to receive another rain. In dry seasons it is necessary to cultivate oftener and later than in wet seasons. No iron-clad rule can be given. If the ground is hard and the weeds get too much of a start for the cultivator, use a plow. The Clark cutaway orchard disc is an excellent implement to use. The common disc and spring tooth harrow are also good.

Row of Okabena apple trees in orchard of Jewell Nursery Co.

If trees are planted on a side-hill where the ground cannot be cultivated, it should be prepared for each tree by taking from the upper side and banking up the lower side to form a large, liberal basin. Little ditches should be dug to direct the water from the upper side into these basins. The ground around the tree should be spaded over two or three times during the summer to furnish the necessary cultivation. The grass between the trees can be used for mulching.

In protecting trees we find the best way is to wrap burlap around the tree spirally from the ground to the branches. Time and burlap will only cost the fraction of a cent. This will protect the body from sun-scald, rabbits and other animals. The burlap can be left on until it rots off. Every fall clear the ground next to the tree and put a little dirt smoothly around it so there will be no possible harbor for mice.

Taking the Wealthy, Duchess or Okabena as a standard for northern varieties, they should come into bearing from three to four years after they are transplanted, producing, perhaps, from a peck to one-half bushel of apples the third season, supposing the tree to have been three years old when set out. The value of a tree when it comes into bearing may be placed at $5.00, because it will pay a good interest on this valuation. Planting them twenty feet apart will make one hundred and nine (109) trees to the acre. Counting the land upon which the trees are usually planted as worth $20.00 per acre, we find the estimated value of an acre so planted would be $565.00.

It is considered a good investment if 6 per cent profit can be realized on real estate from year to year, but the apple crop can be made to average a much larger per cent of profit per acre upon the valuation above given if the business is rightly managed. Our neighbor, Dell Howard, has an orchard of eight acres in bearing, with several acres more coming into bearing another year. He states that the eight acres he has in bearing bring him a greater profit than any eighty acres on his farm, and his farm is a good one. We have talked with a number of orchardists regarding the value of an apple tree when it comes into bearing. It is impossible to arrive at a definite estimate. Mr. Howard states that he would not take $25.00 apiece for his Wealthy trees when they come into bearing, as they will pay a good interest on that investment.

We are clearing the timber from off a bluff that is too steep for cultivation, and valuable only for pasturage, but excellent for orchard purposes. As fast as the timber is cleared we are setting out fruit trees, so that by another year we shall have five thousand (5,000) trees in bearing, with several thousand more to be set out in the future. We are making this bluff land valuable, and this statement is no "bluff."

Commercial orcharding has passed the experimental stage. In 1903 we shipped four thousand (4,000) bushels of apples, receiving good prices for the crop.

Do not plant too many varieties for a commercial orchard. We suggest the following as being of special value: Okabena, Jewell's Winter, Wealthy, Northwest Greening and one or two crabs. We omit the Duchess from this list, not because it isn't a good tree or a good fruit, but as a commercial apple it comes into bearing at a time when a good many other early varieties are on the market, and as it has to compete with them in prices the profit is materially reduced.

Marketing is an important item in the commercial orchard. The apples should be put up carefully in an attractive manner. Select and handsome fruit may be put up in bushel packages and usually sold at from $1.00 to $1.50 a package. Windfalls can usually be sold at prices ranging from 15c to 50c a bushel. We usually hand-pick our fruit, pack it carefully and seldom get less than $3.00 a barrel for this class of apples. Some complain because they can't sell their fruit. Have they properly tried? The markets won't come to them; they must go to the markets. It won't do to wait until the fruit is ripe and then begin to wonder what is to be done with it. Find out early in the season. There are people who want it and commission men who can sell it if unable to do so yourself. Don't condemn the orchard because you have failed to sell the fruit but condemn yourself. The orchard occupies a peculiar place in ethics. If it don't bear, it is condemned; if it does bear, it is condemned. If the orchard could talk and tell the customer how to market its fruit and tell him also that good care is necessary in order to secure continued good results and that in spite of neglect it had done well and more than it agreed to do, we think he would learn some valuable lessons.

This talk about over-production is like poor fruit—mostly "rot." Mr. Hughes, of Le Sueur, who has charge of four canning factories in this state, was asked by me why he did not put up a canning factory for the purpose of canning apples. He replied, "There is not a locality in the state that can guarantee fruit enough to warrant the investment required for a canning factory of this kind." He also stated that he could afford to pay from 25c to 50c a bushel for low grade apples for canning purposes.

Minnesota is importing thousands of barrels every year. It will be a long time before the home market is satisfied and many years before Minnesota will be an exporter. Until that time comes we need not worry about over-production of the right kind of apples. Ten years ago the United States exported one and one-half million dollars worth of apples, and in 1903 exported nearly eight million dollars worth. The markets of the world are but just beginning to be developed; home consumption is increasing very rapidly; the supply is not outstripping the demand. The value of apple orchards in the United States alone is estimated at nearly eighty-four million dollars—a great industry.

The honorable American apple is here to stay. It is a kindly fruit, and the morale of it is wholesome and good. With the rare combination of soil and climate, sunshine and frost, which makes our state justly celebrated for the best bread and butter in the world, and which develops sturdiness, quality and character in men, the apple is no longer regarded as a coming product. *It is already here.*

Summary.

Prepare the ground well.

Plant trees established on hardy, thrifty roots.

Plant deep.

Protect the tree by winding with burlap.

Cultivate for moisture and to keep the weeds down.

A tree when it comes into bearing may be estimated as worth $5.00 to $25.00.

A good tree will pay a large interest on this valuation.

Hilly land may be made valuable by planting to orchard.

Marketing is important. Fruit should be put up attractively.

The apple is here to stay. It is a success. We need it! We want it! We have it!

I have talked with a number of orchardists about the value of their trees when they come into bearing. Mr. Howard says he would not take $25 for a tree when it comes into bearing. If he has 100 trees it must represent an investment of $2,500 and bring him a profit of $150.00 to pay the interest. In a recent issue of the "Farmer" I came across an article written by Mr. McGinnis (many of you know him; he reports upon the fruit region in Washington), in which he cites several instances of the value of an orchard. He speaks of one case in which a farmer sold his fruit on the tree for $550 an acre, and the profit to him was $400. That seems a very large sum, yet I think we can do one-third as well in Minnesota, especially when you take into consideration the splendid fruit display the state of Minnesota had at St. Louis, which compared favorably with the best fruit grown in the famous fruit producing regions of the country.

Now, we will estimate the cost of a tree when it comes into bearing. We will say that a two year or three year old tree can be bought for 50 cents. Planting we will say costs 25 cents more, which would make 75 cents. That pays for the cost and the planting of the tree. Then the care and cultivation of the tree the first year, perhaps, costs 25 cents more, which is only a comparative estimate, but that makes the cost of the tree at the end of the first year $1.00. The second year we will add 25 cents more for care and cultivation, which will make your tree cost $1.25 at the end of the second year, and we will add the same amount for the care of the tree the third year, which brings it up to $1.50. This carries you up to the fourth year, when the tree begins to bear, and placing the value of the tree at $5.00 as a minimum valuation, don't you see that you have trebled your investment, and that your $1.50 has increased to the value of $5.00 at the end of the third year? Besides you have increased the value of your farm, and the income from your orchard is greater in proportion than you can obtain from any other crop.

The President: I would like to ask Mr. Patten to come up here and tell us in a few words what profit he has derived from his Duchess orchard in the last year or two.

Mr. C. G. Patten (Iowa): I cannot tell you exactly what the profit is. I have one orchard of 290 trees which during the last four years has averaged me a little better than $300 an acre. We pay about forty cents for our barrels, and I think the least we ever sold any apples for was $2.30 a barrel. I want to emphasize the point the gentleman made, that if you expect to get any money from your fruit at all you have got to pack it right. By right I mean that, of course, it is all right for a man to put one or two nice layers on top of the barrel, but after that they should be all right straight through. We cannot make any money from any of our orchards unless we cultivate. We have an orchard seeded down to June grass and some clover, something that we plow up once in a while, and in a few of them we keep hogs, but if any of the small orchards are making money it is those that are cultivated and cultivated right up to the best ideas we have.

About the North Star Apple.— In a late issue, Mr. J. B. Brown, of Eureka, makes inquiry about the North Star apple. I will say about thirteen years ago a friend advised me to procure trees of that variety. I wrote to the originator, Mr. Dudley, of Maine. He said he had a tree as hardy and productive as Duchess and better in quality than the Wealthy, and that it kept six weeks longer than the latter. He called it Dudley's Winter. He had no trees for sale but would sell me ten scions for $1.00. I sent the dollar but foolishly intimated that I did not believe his story, because it was too big. Well, I sent my dollar, but the scions never came. I complained to my friend, and he later on wrote me and gave me the name of a man in Rochester, N. Y., who had the same tree. I sent him $4.00, and he sent me ten trees, five of which I planted at home, and the balance I planted in our trial orchard at Wausau, where they are growing finely, and in both places the apples are large and juicy. This man called it the Dudley's Winter, or North Star—I am satisfied it has been sold under the latter name, for a man who lives near La Crosse showed very fine specimens of it at our fair last fall labelled North Star. I did not think it better than Duchess or Wealthy, so have not propagated it, but will say to Mr. Brown if he will cut two or three year old Virginia crab or Hibernal trees off at the ground and graft in the North Star he can raise very fine trees—as mine growing that way are better trees than those grown on their own roots. As Mr. Brown says, it is good in quality, but it is inclined to blight more than the Wealthy or the Duchess with me.

A. J. PHILIPS, West Salem, Wis.

THE COTTONY MAPLE SCALE.

PROF. SAMUEL B. GREEN, ST. ANTHONY PARK.

The cottony maple scale is becoming very troublesome on the soft maples in some sections of this state. In the early summer it has the appearance of being a mass of cotton held on the branches by little scales. If this cotton is drawn out it will be seen to be full of eggs or young, but one must look closely to see them, as they are very small.

This pest destroys the maple trees by sucking the sap. The young hatch out in early summer and move about for several days. On some branches that I had in my office in July the young commenced to crawl about the first of the month and in the course of two or three days had moved about eight or ten feet along the shelves in the office, and they were produced in such enormous masses that they covered everything near the infested branch.

The cottony maple scale.

The best way of combating this insect is perhaps not known, but perhaps as good a way as any is to paint over the scales with a brush lightly dipped in kerosene. It is possible that kerosene may hurt the bark of your soft maples but probably not, since it is not injurious to apples provided it is put on in bright, dry weather in the latter part of winter, or early in the spring before growth starts. The eggs and young are so well protected in the cotton that it is difficult to reach them in summer with anything that will be effective and yet not kill the leaves. If it is thought necessary to fight them during the summer, perhaps the best plan would be to spray with whale oil soap and water, or kerosene emulsion, from about the 15th to the 20th of July, at which time the young have not become firmly fixed in place nor protected by any cottony covering.

If this pest continues to increase, I am inclined to think we shall have to use the lime, sulphur and salt compound for winter spraying. This is the material that is found so useful in combating the scale insects in California and elsewhere.

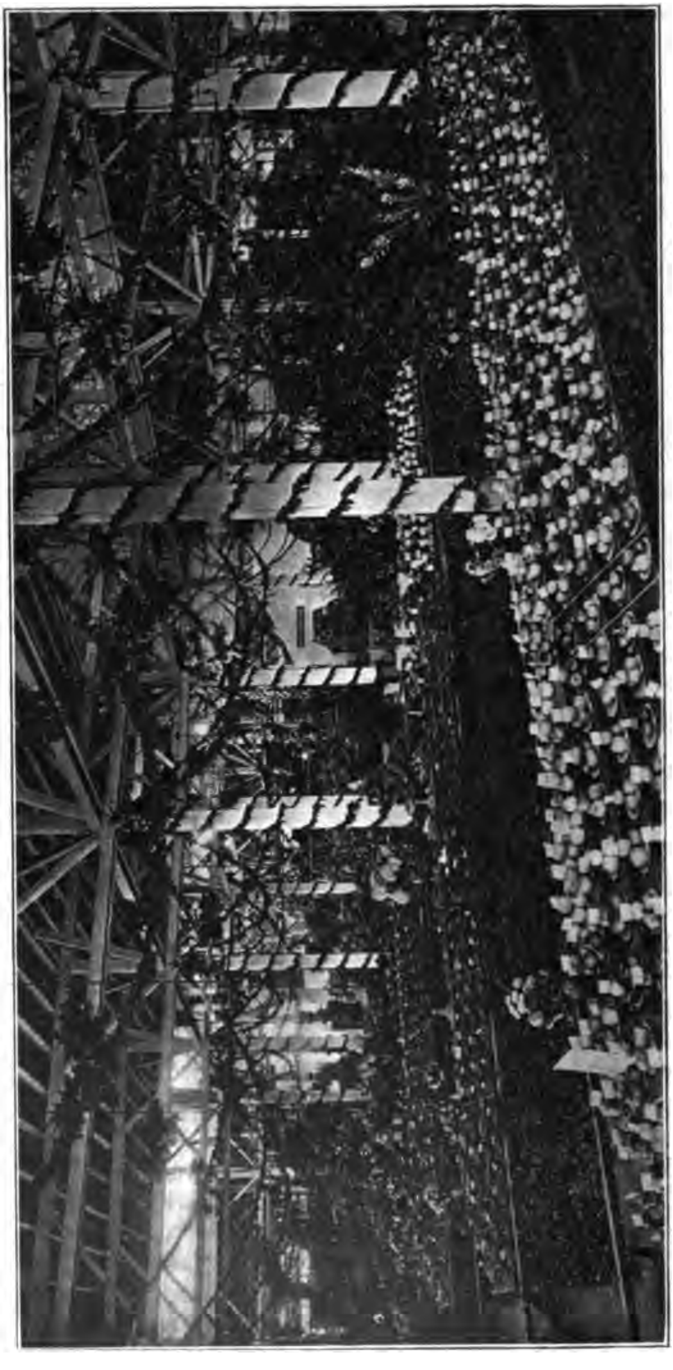
HORTICULTURE AT THE MINNESOTA STATE FAIR, 1905.

A. W. LATHAM, SECY.

To speak of the Minnesota State Fair, closing on September 9, 1905, as the best one of its kind ever held in Minnesota is not going beyond the limit of plain fact, and a similar statement may be made as to what we may be excused for considering the most important display from an ornamental point of view, in the most attractive building upon the grounds, the Agricultural Building. The changes made in the plan of installation in this building, made possible by its being under the management of one person instead of in several departments as heretofore, resulted in opening it up so that practically the whole interior of the hall could be seen from almost any point therein at a single glance. The partition heretofore existing between the horticultural and agricultural departments was removed, and with one or two exceptions all the high installations were placed against the outside wall of the building, facing inward, and the installations in the body of the hall were low enough to not interfere with the general view of the interior. The hall was profusely decorated throughout with evergreen on the posts and stringers and inside walls, and two thousand yards of evergreen rope were also hung in festoons in all directions throughout this large edifice, approximately 160 feet wide by 240 feet long. The center of the hall was appropriately occupied by an orchestra stand, above which hung a large sized model of Liberty Bell veneered with ten barrels of apples, being part of the exhibit of the Jewell Nursery Co. The remainder of their exhibit appeared below the orchestra stand, being upon graduated shelves extending from the level of the stand to within a few feet of the floor, with an arrangement of mirrors behind each shelf and at an angle above the whole that reflected very beautifully the 230 glass jars of assorted fruits in natural color, 340 plates of apples, 140 plates of plums, and 56 plates of grapes which went to make up this splendid exhibit.

Some changes were made in the arrangement of the horticultural part of the hall, made necessary from the fact that the honey exhibit was crowded out of its old place in the agricultural part of the hall by the unusual number of county exhibits. So room was found in the horticultural department, which resulted in the necessary placing of some of the florists' exhibits where they interfered somewhat with the general plan of the hall whereby the whole interior could be seen at a glance. With these slight defects, which will be readily remedied another year, the plan upon which the hall had been newly arranged was carried out in its fullness.

The fruit exhibit differed in detail and in its totals only very slightly from the year before, though the fruit was somewhat riper from the fair being held a week later. The exhibit figured up a total of 3,493 plates of fruit exhibited in the horticultural department as against 3,538 in 1904. It would not be out of the way in reciting the details of this exhibit to mention the fact that an unusually large amount of fruit was found in the county exhibits in the agricultural department, in some places the number of plates running up into hundreds. So much have the orcharding interests of the state developed that they have become a large factor in the county exhibits. Going a little into detail as to the fruit exhibit, there were fourteen pecks of Wealthy displayed, for which a pro rata premium of $20.00 was offered, evidently too small an amount for the number of exhibits. There were also seventeen collections of ten varieties of apples, a wonderfully beautiful exhibit, occupying one side of a long table. The pro rata premium for these was $30.00, also too small for the number and quality of the exhibits. There were only two collections of apples in the professional class and four in the amateur class, which is explainable from the fact that through an oversight in the premium list the usual pro rata premium of $75.00 did not appear, and in its place was found "first premium, $10.00; second premium, $5.00." This oversight was, we understand, corrected later by the management, but not in season to bring out that particular class of exhibits in its entirety. There were thirteen collections of crabs and hybrids, ten varieties each, which, including the single plate exhibits, filled up one side of a long table. The single plate entries of apples of the professional class numbered 170, and the same class of exhibits for amateurs numbered 333. These being the finest apples exhibited, they were placed upon two new tables which had been constructed with four shelves on each side, rising one above another at a distance apart of six inches and having the spaces between the shelves covered with mirrors, which reflected very beautifully the fine fruit shown thereon. These two



View in east end of Agricultural Hall, Minnesota State Fair, 1905, showing a portion of the fruit exhibit and general outlook the long way of room.

new tables were generally considered a considerable improvement upon those heretofore in use, and it is probable that other similar tables will be constructed for the use of this department.

In addition to those above mentioned there were five collections of apple sweepstakes, also the exhibit of seedling apples, of which special mention should be made. In the seedling department were five collections varying from five very nice varieties shown by Nils Anderson, of Lake City, to the magnificent collection of Mr. E. R. Perkins, of Red Wing, consisting of 140 varieties, all grown from the seed of Malinda at one planting, a beautiful lot of uniformly good sized fruit and finely set up. It was by far the most attractive feature of the apple exhibit this year. D. F. Akin, of Farmington, showed an exhibit of twenty-six varieties; A. B. Lyman, of Excelsior, twenty-three Wealthy seedlings of unusually high quality; and Andrew Wilfert, of Cleveland, fourteen specially handsome sorts of a character unknown to the writer. There were sixty-one exhibits of single plate seedling apples. As to the awards, in this as in other classes of fruits, the reader is referred to the premium list appearing in this number. Special mention should be made of a display of 170 varieties of apples from the state experiment station at Owatonna, exhibited by Thos. E. Cashman, its superintednent. There were many fine appearing varieties of seedlings in this collection but as far as tested none of marked merit as to quality. There being no one at hand when the committee examined it to point out the most valuable sorts, the test as to quality was confined to comparatively few varieties.

There were on exhibit for competition 167 plates of grapes, Mr. Gust Johnson, of Excelsior, showing an especially fine collection of over forty varieties which showed skill in placing upon exhibition as well as in growing and handling in preparation to exhibit. It is a pleasure to commend such good work as this.

The plum exhibit consisted of five sweepstake exhibits, seven collections, two half pecks, seventy-five single entries and a few seedlings. The seedlings were especially disappointing, and only one award was made in this class, the others shown not thought to be worthy of awards. Altogether 290 plates of plums were shown.

The Minnesota State Fair always has a plate or two of peaches, and the record was maintained by an exhibit of this fruit from the orchard of Mr. A. D. Leach, of Excelsior.

Visitors in the hall may have noticed that the turntables of the old World's Fair booth, standing in the east end of the hall, were in motion, power having been obtained from the street railway company, which was employed to run the same motor that was used at the World's Fair in Chicago fifteen years ago. These turntables were at the St. Louis World's Fair of last year also and have done the state good service.

The usual number of florists exhibited. E. Nagel & Co., of Minneapolis, occupied their old stand at the north end of the hall east of the main entrance, and John Vasatka, of Minneapolis, a similar position west of the main entrance. The Minneapolis Floral Co. were crowded out of their old place at the west end of the hall by the honey exhibit and occupied a platform in the agricultural department between the orchestra stand and east entrance, making a beautiful mound of verdure with their compact exhibit. The Mendenhall Greenhouses, which with scarcely a break have exhibited at the state fair since its inception, having gone out of business, their place was taken by Mr. A. S. Swanson, who put up a very handsome exhibit in the main aisle running from the north entrance towards the center of the hall.

The entire hall this year was in charge of Mr. J. M. Underwood, assisted in the agricultural department by Mr. Wyman Elliot and in the horticultural department by Mr. Thomas Redpath, and to their zeal and untiring work, the degree of which one must have experienced to appreciate, together with that of a host of willing exhibitors, not forgetting the many assistants in the hall, the grand success of this department should be ascribed.

The judges, in each case, were home talent alone, Mr. Elliot taking time from the agricultural department to judge the plums and assist on the seedling apples, Prof. S. B. Green judging the professional apples, Mr. W. L. Parker the amateur apples, and the writer the grapes. The flowers were judged mainly by John Nordine, of Lake City, and E. P. Holm, of St. Paul. An interesting feature of the floral exhibit were the six decorated tables set up by the florists on Thursday afternoon. As there were only four prizes offered and two of the tables inadvertently appeared with square corners instead of oval, as required by the premium list, the board of management liberally created a new class for the square cornered tables, and in this way each exhibitor received a nice premium varying from $15 to $30, respectively.

A number of nurseries besides the one previously spoken of had exhibits in the hall. A. A. Bost, of Excelsior; W. L. Taylor, of Howard Lake; C. P. Nichols, of Northfield; B. T. Hoyt, of Hamline; and Mrs. N. S. Sawyer, of Excelsior, a display of her "old fashioned flowers." All of these were creditable exhibits and pleasing features blending in well with the general lay-out of the hall.

Pretty much the usual interested number of members of the Horticultural Society were in attendance during the fair, enough to have held a very respectable horticultural meeting almost any hour of the day, some as exhibitors, some as visitors, and all greatly interested as usual in the never to be finally determined questions that take hold on the practical horticulturist.

To those of our members interested in fruit culture who lacked the opportunity of visiting Horticultural Hall during the state fair it is right to say that a little time spent there in looking over the fruit and getting information first hand from those who are engaged in its culture as a business, many of whom are always to be found in the hall, is the best way to get the kind of information needed to make a success of one's efforts. And if possible in coming to the fair, bring along also some kind of a fruit exhibit, whatever you have. The writer will repeat again what has often been said. It is not difficult to take premiums at the state fair. If you have fruit, it is probably as good as that of your neighbor. If you handle it carefully you may be surprised to find that what is handled well by you is just as good as anybody else's. Lay your plans to visit this department next year, and if possible make some kind of a contribution to the fruit display.

PREMIUMS AWARDED ON FRUITS AND FLOWERS AT MINNESOTA STATE FAIR, 1905.

APPLES.

(Open to all)

Judge—Prof. S. B. Green.

Sweepstake Collection—	
Frank Yahnke, Winona	$13.34
R. C. Keel, Rochester	12.66
J. A. Howard, Hammond	12.00
C. C. Hunter, Minneapolis	11.34
John R. Cummins, Eden Prairie	10.66
Peck of Wealthy Apples—	
Fred Zuercher, Excelsior	$2.20
Andrew Wilfert, Cleveland	2.08
A. D. Leach, Excelsior	1.94
John Bisbee, Madelia	1.87
J. A. Howard, Hammond	1.75
P. H. Perry, Excelsior	1.65
Geo. W. Strand, Taylors Falls	1.54
A. A. Bost, Excelsior	1.43
Preston McCulley, Maple Plain	1.32
Henry Gerdsen, Victoria	1.20
H. F. Busse, Minneapolis	1.10
H. H. Heins, Jordan	1.00
Gust Johnson, Excelsior	.88
Collection (Ten varieties)—	
Andrew Wilfert, Cleveland	$ 3.00

Frank Yahnke, Winona	2.85
John Bisbee, Madelia	2.70
H. H. Heins, Jordan	2.55
H. H. Whitmore, Excelsior	2.40
Henry Gerdsen, Victoria	2.25
A. D. Leach, Excelsior	2.10
J. A. Howard, Hammond	1.95
T. E. Perkins, Red Wing	1.80
Nils Anderson, Lake City	1.65
P. H. Perry, Excelsior	1.50
A. D. Leach	1.35
Geo. W. Strand	1.20
C. P. Nichols, Northfield	1.05
Fred Zuercher, Excelsior	.90
G. A. Anderson, Renville	.75

Collection—

	1st Prem.	2nd Prem.	3rd Prem.
J. A. Howard, Hammond	$10.00		
Frank Yahnke, Winona		$5.00	

SINGLE PLATES.

	1st Prem.	2nd Prem.	3rd Prem.
Anisim—			
A. B., Lyman, Excelsior	$1.00		
C., P. Nichols, Northfield		$0.75	
Geo. W. Strand, Taylors Falls			$0.50
Anis—			
J. A. Howard	1.00		
Antonovka—			
W. L. Parker, Farmington	1.00		
J. A. Howard		.75	
C. P. Nichols			.50
Ben Davis—			
J. A. Howard	1.00		
G. A. Anderson, Renville		.75	
Brett—			
W. L. Parker	1.00		
J. A. Howard		.75	
C. P. Nichols			.50
Borovinca—			
J. A. Howard	1.00		
Geo. W. Strand		.75	
Cross—			
W. L. Taylor, Howard Lake	1.00		
W. L. Parker		.75	
Christmas—			
Geo. W. Strand	1.00		
Charlamof—			
J. A. Howard	1.00		
A. B. Lyman		.75	
Geo. W. Strand			.50
Estelline—			
J. A. Howard	1.00		
Fameuse—			
Frank Yahnke	1.00		
G. A. Anderson		.75	
Gideon—			
G. A. Anderson	1.00		
Preston McCulley, Maple Plain		.75	
J. A. Howard			.50
Gilbert—			
J. A. Howard	1.00		
Frank Yahnke		.75	
Golden Russet—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Grundy—			
Frank Yahnke	1.00		

Haas—			
Frank Yahnke	1.00		
W. E. McNelly, Caledonia		.75	
J. A. Howard			.50
Iowa Beauty—			
W. L. Taylor	1.00		
J. A. Howard		.75	
W. L. Parker			.50
Jewell's Winter—			
J. A. Howard	1.00		
Kaump—			
Geo. W. Strand	1.00		
W. L. Parker		.75	
J. A. Howard			.50
Lowland Raspberry—			
A. B. Lyman	1.00		
Longfield—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Geo. W. Strand			.50
Malinda—			
J. A. Howard	1.00		
C. P. Nichols		.75	
A. B. Lyman			.50
Newell's—			
J. A. Howard	1.00		
Peter—			
Geo. W. Strand	1.00		
J. A. Howard		.75	
Frank Yahnke			.50
Peerless—			
W. E. McNelly	1.00		
Preston McCulley		.75	
A. B. Lyman			.50
Peach—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Plumb's Cider—			
Frank Yahnke	1.00		
Rollin's Prolific—			
J. A. Howard	1.00		
Repka Malenka—			
G. W. Strand	1.00		
W. L. Taylor		.75	
J. A. Howard			.50
St. Lawrence—			
Frank Yahnke	1.00		
Scott's Winter—			
J. A. Howard	1.00		
Tetofsky—			
Frank Yahnke	1.00		
W. L. Parker		.75	
University—			
W. L. Taylor	1.00		
A. B. Lyman		.75	
J. A. Howard			.50
White Pigeon—			
J. A. Howard	1.00		
Walbridge—			
Frank Yahnke	1.00		
J. A. Howard		.75	
G. A. Anderson			.50
Yahnke—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Yellow Sweet—			
A. B. Lyman	1.00		
Yellow Transparent—			
A. B. Lyman	1.00		
Frank Yahnke		.75	
C. P. Nichols, Northfield			.50

	1st Prem.	2nd Prem.	3rd Prem.	4th Prem.	5th Prem.	6th Prem.	7th Prem.
Duchess—							
Frank Yahnke	$2.00						
J. A. Howard		$1.75					
Preston McCulley			$1.50				
E. G. Ernestvedt				$1.25			
G. A. Anderson					$1.00		
A. Brackett, Excelsior						$0.75	
W. L. Parker							.50
Hibernal—							
G. A. Anderson	2.00						
G. W. Strand		1.75					
W. L. Taylor			1.50				
Frank Yahnke				1.25			
Preston McCulley					1.00		
J. A. Howard						.75	
W. L. Parker							.50
McMahon White—							
Frank Yahnke	2.00						
J. A. Howard		1.75					
W. L. Taylor			1.50				
Northwestern Greening—							
Frank Yahnke	2.00						
W. L. Taylor		1.75					
J. A. Howard			1.50				
C. P. Nichols				1.25			
A. B. Lyman					1.00		
Okabena—							
G. W. Strand	2.00						
Frank Yahnke		1.75					
J. A. Howard			1.50				
A. B. Lyman				1.25			
W. L. Taylor					1.00		
Patten's Greening—							
W. L. Parker	2.00						
J. A. Howard		1.75					
A. B. Lyman			1.50				
Preston McCulley				1.25			
A. Brackett, Excelsior					1.00		
W. L. Taylor						.75	
C. P. Nichols							.50
Wealthy—							
G. W. Strand	2.00						
Preston McCulley		1.75					
J. A. Howard			1.50				
Frank Yahnke				1.25			
G. A. Anderson					1.00		
A. B. Lyman						.75	
E. G. Ernestvedt							.50
Wolf River—							
Frank Yahnke	2.00						
G. A. Anderson		1.75					
J. A. Howard			1.50				
C. P. Nichols				1.25			

APPLES.

(For amateurs.)

Judges—W. L. Parker, Farmington; J. Nordine, Lake City.

	1st Prem.	2nd Prem.	3rd Prem.
Anis—			
H. H. Heins, Jordan	$1.00		
M. Dewitt, Hammond		$0.75	
A. M. Mitchell, Hammond			$0.50
Anisim—			
H. W. Shuman, Excelsior	1.00		
H. H. Heins		.75	
F. F. Farrar			.50
Antonovka—			
H. W. Shuman	1.00		
H. H. Heins		.75	
Ben Davis—			
Andrew Wilfert, Cleveland	1.00		
P. H. Perry, Excelsior		.75	
A. M. Mitchell			.50

Brett—			
P. H. Perry	1.00		
A. M. Mitchell		.75	
W. L. Tingley, Withrow			.50
Borovinca—			
P. H. Perry	1.00		
Gust Johnson, Excelsior		.75	
M. Dewitt			.50
Cross—			
D. F. Akin, Farmington	1.00		
Charlamof—			
H. W. Shuman	1.00		
Mrs. S. R. Spates, Wayzata		.75	
H. H. Heins			.50
Estelline—			
A. D. Leach	1.00		
M. Dewitt		.75	
H. H. Heins			.50
Fameuse—			
D. F. Akin, Farmington	1.00		
Giant Swaar—			
M. Dewitt	1.00		
A. M. Mitchell		.75	
Gilbert—			
F. F. Farrar	1.00		
A. M. Mitchell		.75	
M. Dewitt			.50
Golden Russet—			
D. F. Akin	1.00		
M. Dewitt		.75	
A. M. Mitchell			.50
Grundy—			
H. H. Heins	1.00		
A. M. Mitchell		.75	
Haas—			
A. D. Leach	1.00		
H. H. Heins		.75	
D. F. Akin			.50
Iowa Beauty—			
Andrew Wilfert	1.00		
D. F. Akin		.75	
Jewell's Winter—			
A. M. Mitchell	1.00		
Nils Anderson, Lake City		.75	
M. Dewitt			.50
Judson—			
H. H. Heins	1.00		
A. M. Mitchell		.75	
Lowland Raspberry—			
D. F. Akin	1.00		
Longfield—			
John Bisbee, Madelia	1.00		
H. W. Shuman		.75	
A. D. Leach			.50
Malinda—			
Mrs. S. R. Spates	1.00		
H. W. Shuman		.75	
P. H. Perry			.50
McMahon's White—			
A. D. Leach	1.00		
A. M. Mitchell		.75	
Newell's—			
John Bisbee	1.00		
A. M. Mitchell		.75	
M. Dewitt			.50
Northwestern Greening—			
A. D. Leach	1.00		
H. H. Whitmore, Excelsior		.75	
P. H. Perry			.50
Peter—			
H. W. Shuman	1.00		
Henry Gerdsen, Victoria		.75	
P. H. Perry			.50

Plumb's Cider—			
Andrew Wilfert	1.00		
D. F. Akin		.75	
Nils Anderson			.50
Repka Malenka—			
W. J. Tingley, Withrow	1.00		
John Bisbee		.75	
Fred Zuercher, Excelsior			.50
Scott's Winter—			
M. Dewitt	1.00		
A. M. Mitchell		.75	
Nils Anderson			.50
Tetofsky—			
W. J. Tingley	1.00		
Utter—			
Nils Anderson	1.00		
H. W. Shuman		.75	
Gust Johnson			.50
Kaump—			
John Cummins, Eden Prairie	1.00		
A. M. Mitchell		.75	
M. Dewitt			.50
University—			
A. D. Leach	1.00		
W. A. Carr		.75	
H. H. Whitmore			.50
Wolf River—			
Fred Zuercher	1.00		
P. H. Perry		.75	
A. M. Mitchell			.50
White Pigeon—			
A. M. Mitchell	1.00		
M. Dewitt		.75	
Walbridge—			
Nils Anderson	1.00		
A. M. Mitchell		.75	
M. Dewitt			.50
Yahnke—			
John R. Cummins	1.00		
Yellow Transparent—			
A. D. Leach	1.00		
D. F. Akin		.75	
P. H. Perry			.50

	1st Prem.	2nd Prem.	3rd Prem.	4th Prem.	5th Prem.	6th Prem.	7th Prem.
Duchess—							
G. G. Sargent, Deephaven	$2.00						
Josephine Stafford		$1.75					
A. D. Leach			$1.50				
F. F. Farrar				$1.25			
W. A. Carr					$1.00		
H. W. Shuman						$0.75	
Hibernal—							
J. W. Beckman, Cokato	2.00						
Aug. Giesman		1.75					
Mrs. S. R. Spates			1.50				
H. H. Whitmore				1.25			
Henry Gerdsen, Victoria					1.00		
W. J. Tingley						.75	
McMahon White—							
Gust Johnson	2.00						
A. D. Leach		1.75					
M. Dewitt			1.50				
A. M. Mitchell				1.25			
Northwestern Greening—							
Nils Anderson	2.00						
John Bisbee		1.75					
Mrs. S. R. Spates			1.50				
M. Dewitt				1.25			
D. F. Akin					1.00		
Fred Zuercher						.75	
P. H. Perry							.50

Okabena—							
H. H. Heins	2.00						
F. F. Farrar		1.75					
H. W. Shuman			1.50				
John Bisbee				1.25			
H.F. Busse, Minneapolis					1.00		
J. W. Beckman						.75	
M. Dewitt							.50
Patten's Greening—							
H. H. Whitmore	2.00						
P. H. Perry		1.75					
Fred Zuercher			1.50				
A. D. Leach				1.25			
Mrs. S. R. Spates					1.00		
H. H. Heins						.75	
Andrew Wilfert							.50
Wealthy—							
H. W. Shuman	2.00						
A. D. Leach		1.75					
P. H. Perry			1.50				
H. H. Whitmore				1.25			
John Bisbee					1.00		
H. H. Heins						.75	
Wolf River—							
Fred Zuercher	2.00						
H. H. Heins		1.75					
Andrew Wilfert			1.50				
P. H. Perry				1.25			
A. M. Mitchell					1.00		
Gust Johnson						.75	
M. Dewitt							.50

CRABS AND HYBRIDS.

(Open to all.)

Judges—Jno. Nordine, Lake City; Wm. L. Parker, Farmington.

	1st Prem.	2nd Prem.	3rd Prem.
Dartt—			
Nils Anderson	$1.00		
W. E. McNelly, Caledonia		$0.75	
H. H. Heins, Jordan			$0.50
Early Strawberry—			
Nils Anderson	1.00		
W. E. McNelly		.75	
H. H. Heins			.50
Florence—			
H. W. Shuman, Excelsior	1.00		
P. H. Perry		.75	
Nils Anderson			.50
General Grant—			
P. H. Perry	1.00		
G. A. Anderson		.75	
A. M. Mitchell			.50
Hyslop—			
J. A. Howard	1.00		
A. M. Mitchell		.75	
G. A. Anderson			.50
Lyman's Prolific—			
H. W. Shuman	1.00		
A. D. Leach		.75	
P. H. Perry			.50
Martha—			
Preston McCulley	1.00		
P. H. Perry		.75	
G. A. Anderson			.50
Minnesota—			
H. H. Heins	1.00		
J. A. Howard		.75	
J. W. Beckman, Cokato			.50
Montreal Beauty—			
J. A. Howard	1.00		
Frank Yahnke		.75	

Meader's Winter—			
J. A. Howard	1.00		
A. M. Mitchell		.75	
Orange—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Nils Anderson			.50
Pickett's—			
J. A. Howard	1.00		
A. M. Mitchell		.75	
M. Dewitt, Hammond			.50
Pride of Minneapolis—			
Mrs. S. R. Spates, Wayzata	1.00		
Shields—			
H. W. Shuman	1.00		
A. D. Leach		.75	
H. H. Whitmore			.50
Sweet Russet—			
George W. Strand	1.00		
J. A. Howard		.75	
Mrs. S. R. Spates			.50
Tonka—			
H. H. Heins	1.00		
Geo. W. Strand		.75	
J. A. Howard			.50
Transcendent—			
H. H. Heins	1.00		
Geo. W. Strand		.75	
J. A. Howard			.50
Virginia—			
P. H. Perry	1.00		
W. A. Carr, Excelsior		.75	
A. D. Leach			.50
Whitney—			
F. F. Farrar, White Bear	1.00		
Gust Johnson		.75	
Mrs. S. R. Spates			.50

SEEDLING APPLES.

Judges—Samuel B. Green, St. Anthony Park; Wyman Elliot, Minneapolis.

Collection, excluding Crabs and Hybrids—

T. E. Perkins, Red Wing	$15.00
Andrew Wilfert	5.00
A. B. Lyman	3.50
D. F. Akin	3.00

Collection, Crabs and Hybrids—

John R. Cummins	$8.00
T. E. Perkins	3.00
A. B. Lyman	2.50
D. F. Akin	1.50

SUMMER VARIETY.

	1st. Prem.	2nd Prem.	3rd Prem.	4th Prem.
A. B. Lyman	$6.00			
A. B. Lyman		$4.00		
T. E. Perkins			$2.00	
T. E. Perkins				$1.00
Fall Variety (not sweet), never having received a premium at Minnesota State Fair—				
Nils Anderson	6.00			
A. B. Lyman		4.00		
T. E. Perkins			2.00	
T. E. Perkins				1.00
Fall Variety (not sweet), open to all—				
A. B. Lyman	6.00			
T. E. Perkins		4.00		
T. E. Perkins			2.00	
T. E. Perkins				1.00

Winter Variety (not sweet), never having received a premium at Minnesota State Fair—

T. E. Perkins	10.00			
Nils Anderson		8.00		
T. E. Perkins			4.00	
A. B. Lyman				2.00

Winter Variety (not sweet), open to all—

A. B. Lyman	10.00			
A. B. Lyman		8.00		
Mrs. S. P. Spates			4.00	
T. E. Perkins				2.00

Sweet Variety—

T. E. Perkins	6.00		
T. E. Perkins		4.00	
A. B. Lyman			2.00

PLUMS.

Judge—Wyman Elliot, Minneapolis.

Sweepstakes collection—

Frank Yahnke, Winona	$12.00
J. A. Howard, Hammond	7.80
P. H. Perry, Excelsior	5.40
C. C. Hunter, Minneapolis	4.80

Collection—

Nils Anderson, Lake City	$5.60
Frank Yahnke	4.48
Geo. W. Strand, Taylors Falls	3.68
Gust Johnson, Excelsior	3.68
P. H. Perry	3.36
J. A. Howard	2.80
John R. Cummins	1.40

	1st Prem.	2nd Prem.	3rd Prem.
Cheney—			
Mrs. F. H. Gibbs, Merriam Park	$1.00		
H. F. Busse, Minneapolis		$0.75	
Geo. W. Strand			$0.50
Forest Garden—			
Nils Anderson, Lake City	1.00		
Geo. W. Strand		.75	
J. A. Howard			.50
Hawkeye—			
Frank Yahnke	1.00		
H. F. Busse		.75	
J. A. Howard			.50
New Ulm—			
Gust Johnson	1.00		
Geo. W. Strand		.75	
Hamlin V. Poore, Bird Island			.50
Ocheeda—			
Frank Yahnke	1.00		
Rockford—			
Gust Johnson	1.00		
Geo. W. Strand		.75	
Rollingstone—			
J. A. Howard	1.00		
Geo. W. Strand		.75	
Gust Johnson			.50
Stoddard—			
Frank Yahnke	1.00		
Gust Johnson		.75	
J. A. Howard			.50
Surprise—			
Frank Yahnke	1.00		
Geo. W. Strand		.75	
Weaver—			
Frank Yahnke	1.00		
Geo. W. Strand		.75	
H. F. Bussee			.50
Wolf, Clingstone—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Gust Johnson			.50

Wyant—			
Frank Yahnke	1.00		
J. A. Howard		.75	
Geo. W. Strand			.50
Compass Cherry—			
A. D. Leach	1.00		
Seedling Hybrid Cherry—			
Geo. W. Strand	5.00		
J. W. Beckman, Cokato		3.00	
Mrs. S. R. Spates			2.00
Collection of Seedling Plums—			
Hamlin V. Poore, Bird Island			$5.00

	1st Prem.	2nd Prem.	3rd Prem.	4th Prem.	5th Prem.
Best Plate of Seedling Plums—					
Nils Anderson	$5.00				
Frank Yahnke		$4.00			
G. A. Anderson, Renville			$3.00		
Hamlin V. Poore				$2.00	
D. F. Akin					$1.00

GRAPES.

Judge—A. W. Latham.

Collection—	
Gust Johnson, Excelsior	$40.00
A. A. Bost, Excelsior	15.00
P. H. Perry, Excelsior	5.00

	1st Prem.	2nd Prem.	3rd Prem.
Agawam (Roger's No. 15)—			
Gust Johnson, Excelsior	$1.50		
A. A. Bost, Excelsior		$1.00	
Aminia—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Beta—			
F. F. Farrar, White Bear	1.50		
A. A. Bost		1.00	
Brighton—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Concord—			
August Giesman, Merriam Park	1.50		
Gust Johnson		1.00	
P. H. Perry, Excelsior			.50
Cottage—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Campbell's Early—			
P. H. Perry	1.50		
Delaware—			
Gust Johnson	1.50		
August Giesman		1.00	
A. A. Bost			.50
Duchess—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Early Victor—			
Gust Johnson	1.50		
P. H. Perry		1.00	
Eldorado—			
A. A. Bost	1.50		
Gust Johnson		1.00	
Empire State—			
Gust Johnson	1.50		
Green Mountain—			
P. H. Perry	1.50		
A. A. Bost		1.00	
Herbert (Roger's No. 44)—			
Gust Johnson	1.50		

Iona—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Janesville—			
A. A. Bost	1.50		
P. H. Perry		1.00	
Lindley (Roger's No. 9)—			
Gust Johnson	1.50		
Lady—			
Gust Johnson	1.50		
August Giesman		1.00	
A. A. Bost			.50
Martha—			
Gust Johnson	1.50		
P. H. Perry		1.00	
A. A. Bost			.50
Massasoit (Roger's No. 3)—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Moore's Diamond—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Moore's Early—			
Gust Johnson	1.50		
P. H. Perry		1.00	
A. A. Bost			.50
Niagara—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Pocklington—			
Gust Johnson	1.50		
A. A. Bost		1.00	
P. H. Perry			.50
Pokeepsie Red—			
Gust Johnson	1.50		
Telegraph—			
Gust Johnson	1.50		
A. A. Bost		1.00	
Wilder (Roger's No. 4)—			
Gust Johnson	1.50		
Woodruff Red—			
Gust Johnson	1.50		
P. H. Perry		1.00	
Worden—			
Gust Johnson	1.50		
A. A. Bost		1.00	
P. H. Perry			.50
Wyoming Red—			
Gust Johnson	1.50		

FLOWERS.

(For professionals.)

Judge—John Nordine.

PLANTS.

Collection of Foliage and Decorative Plants—

	1st Prem.	2nd Prem.	3rd Prem.	4th Prem.	5th Prem.
August S. Swanson, St. Paul	$35.00				
Minneapolis Floral Co		$30.00			
E. Nagel & Son, Minneapolis			$20.00		
John Vasatka, Minneapolis				$15.00	
Collection of Greenhouse Plants—					
Minneapolis Floral Co	20.00				
E. Nagel & Son		15.00			
John Vasatka			10.00		
Collection of Five Hanging Baskets—					
E. Nagel & Son	6.00				
Minneapolis Floral Co		4.00			
John Vasatka			3.00		

Collection of Coleus—					
John Vasatka	2.00				
E. Nagel & Son		1.00			
Group of Palms in Pot—					
Minneapolis Floral Co	4.00				
E. Nagel & Son		3.00			
August S. Swanson			2.00		
John Vasatka				1.00	
Single Specimen Palm—					
August S. Swanson	4.00				
John Vasatka		3.00			
E. Nagel & Son			2.00		
Minneapolis Floral Co				1.00	
Single Specimen Fern—					
August S. Swanson	4.00				
John Vasatka		3.00			
E. Nagel & Son			2.00		
Minneapolis Floral Co					1.00
Collection of Geraniums in Bloom—					
John Vasatka	4.00				
E. Nagel & Son		3.00			
Collection of Carnations in Bloom—					
E. Nagel & Son	3.00				
John Vasatka		2.00			
Vase Filled with Plants—					
E. Nagel & Son	5.00				
John Vasatka		4.00			
August S. Swanson			3.00		
Minneapolis Floral Co				2.00	

CUT FLOWERS.

Judge—E. P. Holm, St. Paul.

	1st Prem.	2nd Prem.	3rd Prem.
Aug. S. Swanson	$25.00		
Minneapolis Floral Co		$15.00	
E. Nagel & Son			$10.00
Collection of Dahlias—			
F. F. Farrar, White Bear	4.00		
E. Nagel & Son		2.50	
John Vasatka			1.50
Collection of Sweet Peas—			
John Vasatka	4.00		
Mrs. Chas. Krause, St. Paul		2.50	
Collection of Asters—			
F. F. Farrar	4.00		
E. Nagel & Son		2.50	
John Vastaka			1.50
Collection of Carnations—			
E. Nagel & Son	4.00		
John Vasatka		2.50	
Minneapolis Floral Co			1.50
Collection of Roses—			
E. Nagel & Son	4.00		
Collection of Gladioli—			
F. F. Farrar	4.00		
E. Nagel & Son		2.50	
John Vasatka			1.50

DESIGNS, BASKETS AND BOUQUETS.

Table Decoration (oval table)—

	1st Prem.	2nd Prem.	3rd Prem.	4th Prem.
Aug. S. Swanson	$30.00			
E. Nagel & Son		$25.00		
W. L. Parker			$20.00	
Wm. Donaldson & Co				$15.00
Table Decoration (square table)—				
Minneapolis Floral Co	25.00			
R. A. Latham, Minneapolis		15.00		

Twelve-inch Basket of Flowers—				
Minneapolis Floral Co	5.00			
Wm. Donaldson & Co		3.00		
E. Nagel & Son			2.00	
John Vasatka				1.00
Table Bouquets—				
Minneapolis Floral Co	3.00			
E. Nagel & Son		2.00		
John Vasatka			1.00	
Hand Bouquet—				
Minneapolis Floral Co	3.00			
Wm. Donaldson & Co		2.00		
John Vasatka			1.00	
Bridal Bouquet—				
Minneapolis Floral Co	3.00			
Wm. Donaldson & Co		2.00		
John Vasatka			1.00	

CUT FLOWERS.

(For amateurs.)

AUGUST S. SWANSON, Judge.

	1st Prem.	2nd Prem.	3rd Prem.	4th Prem.
Collection of Asters—				
R. A. Koepke, Minneapolis	$4.00			
E. D. Fuller, Minneapolis		2.50		
H. F. Busse, Minneapolis			1.50	
Mrs. Edwin Doble, St. Anthony Park				$1.00
Collection of Dahlias—				
Mrs. S. R. Spates, Wayzata	4.00			
F. H. Gibbs, Merriam Park		2.50		
Mrs. Charles Krause			1.50	
Collection of Gladioli—				
C. M. Hoag, Minneapolis	4.00			
F. F. Farrar, White Bear		2.50		
Geo. A. Kersten, Minneapolis			1.50	
F. H. Gibbs, Merriam Park				1.00
Collection of Nasturtiums —				
Mrs. Chas. Krause	4.00			
A. A. Brown, Minneapolis		2.50		
Collection of Marguerite Carnations—				
F. H. Gibbs	4.00			
Mrs. Chas. Krause		2.50		
E. D. Fuller			1.50	
Collection of Pansies—				
F. F. Farrar	4.00			
Mrs. Chas. Krause		2.50		
Mrs. L. M. Scharff, Hamline			1.50	
Mrs. D. Gantzer, Merriam Park				1.00
Collection of Verbenas—				
Mrs. D. Gantzer	4.00			
Mrs. Chas. Krause		2.50		
F. H. Gibbs			1.50	
A. A. Brown, Minneapolis				1.00
Collection of Zinnias—				
F. F. Farrar	4.00			
A. A. Brown		2.50		
Mrs. Chas. Krause			1.50	
F. H. Gibbs				1.00
Collection of Sweet Peas—				
Mrs. Chas. Krause	4.00			
Mrs. D. Gantzer		2.50		
Collection of Snap Dragon—				
Mrs. D. Gantzer	4.00			
F. H. Gibbs		2.50		
Mrs. Chas. Krause			1.50	
Collection of Gaillardia—				
Mrs. D. Gantzer	4.00			
Collection of Annuals—				
Mrs. Chas. Krause	4.00			
F. H. Gibbs		2.50		
Mrs. D. Gantzer			1.50	

A VISIT TO THE GOVERNMENT EXPERIMENT STATIONS OF MANITOBA AND ASSINIBOIA.

A. W. LATHAM, SEC'Y.

Carrying out a long contemplated plan, Mr. Wyman Elliot and the writer left Minneapolis one lowering day in the middle of August, en route to Winnipeg, for a visit to the government experiment stations at Brandon, Manitoba, and Indian Head, Assiniboia. What the day lacked in brightness was fully made up by the wonderful profusion of golden rod, sun flowers and an infinite variety of other wild flowers that escorted us all the way across the state and even to Winnipeg itself.

Our plan contemplated a visit on the way to the North Dakota Experiment Station, at Fargo, but some unparalleled stupidity on our part, aided by a bit of lapse of duty on the part of the conductor on the train, in detaining our transportation in his pocket too long, carried us by Fargo, and the early evening found us at Grand Forks, N. D., whence we were fortunate in getting a train to Crookston, across the river a few miles in Minnesota, where we spent the night. A purpose to visit the experiment station at Crookston also failed of accomplishment from the fact of there having just been a change in the management of the station and there being no superintendent in attendance.

Early morning found us on our way north, down the Red River Valley, under the same cloudy sky, with an occasional shower, the land showing evidence already of a superabundance of rain: a flat land that needs draining for sure success in horticultural achievement and awaits the successful development of the system of drainage being carried forward in the valley by the state.

Crossing the state line at the noon hour, the sun broke through the clouds and gave us thereafter three gloriously beautiful days to complete our tour in northwestern Canada. We were met at the station in Winnipeg by Hon. Wm. G. Scott, of that city, treasurer and one of the leading members of the Western Horticultural Society, which has its headquarters in that city. Having arranged for our transportation and engaged berths on the train going west that night, being the guests of Mr. Scott he undertook to show us in a three hours' trip some of the beauties and achievements of this strong, new city of the northwestern plains. The writer had been there twenty-eight years before, when Winnipeg was truly a "backwoods" town, though then the population was over 10,000. It is now a city of 90,000, with a hundred miles of asphalt streets and other proportional public and private improvements. Winnipeg is fortunate in having been built on the banks of two rivers, which unite at this place, the Red River of the North and the Assiniboine. Several bridges span these rivers, whose banks are well wooded, and the opportunity for diversification this affords in the placing of homes along the banks of these streams is a pleasant change from the general flatness of the land upon which the city is built. Winnipeg pays much attention to the adornment of its parks and the streets of its resident districts, which have a very neat appearance from the wide boulevard of twelve or fifteen feet on either side of a sufficiently narrow driveway. Shade trees, mainly white elm, which thrive well in that region, are being planted in these boulevards all over the city at the distance, we should judge, of about fifteen feet—which mistake can be remedied later by cutting out two-thirds of the trees—if they have the nerve to do it, which we very much doubt. We noted, also, the overplanting of shrubs and trees in the parks and other public places of the city. With this little criticism there was much to commend; so many beautiful lawns and flower gardens and such brilliant flowers that reflected so purely the clearness and brightness of the day, and we fully realized we were in a community of charming homes.

Early morning found us on the undulating plains of Assiniboia, which looked strange indeed, with their scattered clumps of poplar with underbrush of hazelnut, snowberry, silverberry, etc. For a hundred miles, from daylight to Indian Head, scarcely a tree in sight but low poplar, but plenty of these in little groves, rarely merging into woods, as far as one could see, over all the unevenness of the plain, in no place an exactly level prairie. Occasionally farm homes and wide fields of grain diversify the way. At nine o'clock we were at Indian Head, a town of something under 1,000 inhabitants, lying in the plains of that northwestern country, neat and homelike, though lacking in sufficient quantity the tree growth that must in time be their's. 'A half mile's walk from the town brought us to Indian Head Experiment Station, the remotest point of our journey westward. This government station, started here in 1890 by the present superintendent, Mr. Angus Mackay, is on a tract of quite level ground, consisting of two sections (1,200 acres). At its inception there was not a trace of a bush on the premises, barring probably a little stunted growth of poplar at some points. Now it is enclosed with hedges of box elder, there called the Manitoba maple, upwards of twenty feet high, with avenues of the same tree, varied occasionally with white elm and gray ash and other sorts, running here and there throughout the tract, so that there are in all thirteen miles of these avenues bordered, in most cases on both sides, by these hedges or tree rows, some of which are trimmed as wide hedges far enough up for the branches to be out of the way of passing vehicles, and others are trimmed as trees with high trunks in the ordinary way.

This the reader will understand is a grain country. Everywhere wheat, and more wheat, with occasional fields of barley and oats and a few potatoes. Once in a while a farmer raises a few vegetables and perhaps a few small fruits. Corn is not grown as a farm crop. So that the experiments at this station are limited largely to the production of these cereals, and the principal work which we saw in the several hours' examination of the station, under the guidance of its superintendent, were mainly the growing of grains in experiment plats. As a test of what the country will produce with reasonable wind protection—which, unfortunately, the farmers of this region seem very loath to provide—this station is a great success, and the things we saw would delight the eye and excite the imagination of any practical farmer.

1890

Residence of Supt. Angus Mackay, Indian Head, Assa., Experiment Station in 1890.

But we were not there to study farm conditions, except incidentally, but rather to see what could be done in the various lines of horticulture and glean what lessons we might for the Minnesota horticulturist. The garden about Mr. Mackay's residence would indicate that they can grow there very much the same variety of flowers and shrubs that are grown in Minnesota. We have certainly seen no finer flowers at home. Although some perennials winter safely, they require greater care. Small fruits, including the raspberry, currant, gooseberry, and strawberry, also winter with very much the same protection given them in our own state and bear well, except that the strawberry crop is often cut off by late spring frosts. Loss in the strawberry yield from this source is common, we learned at various points in our journey, and they have evidently not tested the art of covering the strawberry vines with straw at the appearance of a frosty night to protect the blossoms. As to apples, though some varieties have been put in at Indian Head, we found nothing of value except Pyrus baccata seedlings and some crosses of the Pyrus baccata with hardy varieties of the common apples, the trees growing having been sent out from the central experiment station at Ontario. These crosses all show a predominance of the crab, and as far as we can judge are hardy, although the fruit in all cases is small and does not promise large value where crabs of such varieties as the Transcendent can be grown. Some varieties of Americana plums were noticed in fruiting and among them two or three trees of the Weaver that were bearing a very full crop. As a rule, the Americana plum is too late to ripen its fruit there ahead of the early fall frosts. The plums that succeed best in that region are the Manitoba native, or Prunus nigra.

1905

Residence of superintendent of Indian Head, Assa., Experiment Station in 1905.

Of ornamental shrubbery there is quite a large variety that seems to thrive in that region. Nearly all of the lilacs; the caragana, which, by the way, is much used for hedges and even shelter belts, as exemplified at the station in a number of places; the dwarf caragana; many of the honeysuckles, especially the Tartarian varieties, the barberries, many of the spireas, etc.; the cotoneaster is a handsome and perfectly hardy shrub, bearing bright red berries, with which we are not much acquainted at home. A number of very interesting and successful ornamental hedges are being kept up at the station. The one we noted that seemed of most value was from the native hawthorn, that being very prickly, not only making a handsome hedge but also an impenetrable one. One very interesting hedge was grown from the cotoneaster, and there was also a very fine lilac hedge. A neat hedge of the snowberry enclosed the flower gardens in the front of Mr. Mackay's residence. In fact, nearly every variety of ornamental shrub of probable hardiness in that region has been tested at this station and enough kinds saved from the devastation of winter to sufficiently adorn and beautify any home grounds or public parks.

There is much to commend in the very complete and careful way in which this station is carrying out its experiments and especially when it is known that its work is done, including a full line of experimentation with live stock, with eighteen men, it is apparent that the station is under excellent management. From the cupola of the station barn we had a magnificent view of prairie country, which in this section is highly developed. Farm lands here are held at upwards of $40.00 per acre.

Through the courtesy of Mr. H. H. Campkin, an enterprising citizen of Indian Head, we were taken a long afternoon's ride amongst the grain fields of that vicinity—and indeed there are no other kind. The special feature of this farming which most attracted our attention was the fact that only two crops of grain are raised in three years, the third year being devoted to summer fallowing the ground, which is really a process of storing the rain to make better crops the following two years, a rotation made absolutely necessary in a region where the rainfall is usually less than one-half that of Minnesota. This summer fallowing consists of plowing of the ground as soon as vegetation is well started in the spring and the subsequent movement of the surface to kill any growth that may start and keep up a dust mulch. To accomplish these ends requires several cultivations during the summer with a disc harrow or other instrument. The result is the removal of weeds from the grain fields, and as they are destroyed as soon as they start to grow they have no opportunity to take up and evaporate the moisture from the soil, and the entire rainfall of the season of summer fallowing is practically held in storage thereby for future use.

We were loath to leave this interesting place—interesting not only on account of its novelty but also from the uniform kindness and courtesy of those we met there. We were at Brandon at noon the next day, as planned, but had failed in securing the full night's rest to which we were entitled because of a delay in the movement of the trans-continental train. Having only time for a brief stay here, without waiting for Superintendent Bedford, who was in town to receive us, we secured a livery horse and drove north, crossing the valley of the Assiniboine, which is here some mile and a half or two miles wide, and about noon reached the government experiment station located at this point. As an opportunity to test what can be done in the way of cultivation of crops in this part of Manitoba under normal conditions, I judge this station is not well located, as it is in the valley of the river referred to, a valley running east and west with a range of hills of some seventy-five to a hundred feet high on either side. That portion of the station that we saw is located either on the bottom lands of the valley or on the south slope of the hills which border it on the north. A comparatively small portion of the country, as far as we could judge, has a similar environment.

Buffalo berry hedge at Brandon, Man., Experiment Station.

As a result of the unusual rains this season and the heavy wind storms, nearly all of the experiment plats of grain at this station growing in the valley were badly lodged, while upon the open prairie, where the farms of the country are generally located, as a rule the grain stood up beautifully and there was very little of it showing the effects of wind. Superintendent Bedford has paid more attention to fruit raising at this station than was given to the subject at Indian Head, and he has growing a large number of Pyrus baccata crab apple trees, probably twelve or fifteen feet high, and also a good many varieties of the crosses of the Pyrus baccata and Pyrus malus. Most of these trees are bearing fruit, and the crosses especially were of interest as showing in the growth of the tree and the appearance of the fruit, in many cases, traces of the varieties with which the Pyrus baccata was crossed. There were crosses in bearing with the Wealthy, Duchess, Fameuse, Hibernal and many other sorts. There were many instances of top-working of the Pyrus baccata, and we especially noted Transcendent trees of good bearing size on this stock which seemed to be entirely hardy. The Transcendent, it must be understood, is not hardy in this section when grown and planted in the ordinary way as with us. A weakness is developing in many of these trees practically unknown in Minnesota. The leaves turn yellowish, showing with this light yellow color the veins of the leaves very prominently. It is evidently a disease to which the trees attacked will surely succumb. No cause or remedy has been found as yet for this trouble. Most of these trees are growing on the bottom lands at the foot of the south hill slope previously referred to, a very warm place and one that would be considered with us an especially unfavorable one.

Well up the hillside on this same south slope is a younger orchard, containing many varieties worked on Pyrus baccata stock. These trees are young, only a few years transplanted, and no final test has been made as to their success. Amongst them was one small tree of the Hibernal which was bearing a little fruit, a pleasant sight to see, though there was evidence that the previous year's growth had been winter-killed some. We found also a single branch of the Duchess top-worked on the same stock, with some apples on it. Mr. Bedford takes a large and intelligent interest in this orchard experiment work, and it will be worth while for those of our readers who are interested in this sort of thing to secure the report from this station and keep in touch with what is being accomplished there. The ornamental shrubs, evergreens, etc., were of about the same varieties and the measure of success about the same as at Indian Head. We noted especially some very beautiful specimens of Tartarian honeysuckle that were full of fruit of unusual size and brilliancy of color, far exceeding anything that we had seen at home. Two varieties that we thought especially beautiful were the Lonicera elegans and the Lonicera splendens, the one having brilliant red fruit as large as a large currant or high-bush cranberry, and the other a fruit of pinkish hue.

The measure of success in apple growth at this station under what seemed to us comparatively unfavorable circumstances gives promise that the farmer in that region, with a reasonable degree of protection from shelter belts, may succeed in growing many different varieties of crab apples and possibly some of the hardier sorts of the common apple. Mr. Bedford had some beautifully trimmed hedges of the same varieties that we found at Indian Head, also many very handsome specimens of evergreen and many varieties of shade and ornamental trees. As at Indian Head, the shelter belts are mainly box elder, and the trees were trimmed up with the usual trunk rather than pruned into hedge form, protection from the north being not so necessary on account of the environment.

Ornamental hedges and glimpse of Supt. S. A. Bedford's residence at Brandon, Man., Experiment Station.

We reached Winnipeg on our return trip on the evening of the same day that we visited the Brandon station. The following morning, again under the escort of Mr. Scott, whose guests we continued to be as long as our stay in the northwest lasted, we visited many of the parks and public buildings of Winnipeg and took a bird's eye view of the city from the roof-garden of the Free Press. The early afternoon hour found us on our way south, reluctant to leave this beautiful and interesting region. Grain fields on every hand just turning to brown under the August sun, the busy reapers here and there beginning to garner the harvest, and with all, a clear sky and the richest of air, made our ride up the valley to Crookston one long dream. At Crookston we changed cars and took a sleeper to Minneapolis, which brought this most pleasant trip to a close.

A Manitoba plum tree in blossom,—taken by S. R. Mighton.

What have we brought back from there of special interest and value to the horticulturist of Minnesota? There are two things that present themselves to my thought, from which we may draw lessons of special value. The one is the certain assurance that in the Pyrus baccata we have a stock upon which to work trees for Minnesota orchards that is entirely hardy, no instance of its having winter-killed in Manitoba having come to our notice, and the top-working there, of which we saw considerable, all seemed to show good points of union and gave promise of endurance. The experiment of working the Pyrus malus on the Pyrus baccata stock should be extensively tried by Minnesota fruit growers. There seems to be much hope of success, especially where the point of union is the crown of the stock. The other lesson which comes to us with special force we learned from the practice of summer fallowing the wheat fields of the region we visited. Frequent cultivation, not allowing a single weed to take moisture from the soil, and providing a continuous dust mulch, will make gardening successful during seasons when the rainfall is less than one-half the normal rainfall of Minnesota—and we occasionally have such seasons in this state. Instead of planning to put in expensive irrigation plants, which may often be unsatisfactory at the best, try this high degree of cultivation, and if thoroughly persisted in it should give successful results in the dryest season. Another thought of special interest to us is that there are no more hospitable people in the world than those who live on the other side of the Canadian line.

GEORGIA STATE HORTICULTURAL SOCIETY.
ANNUAL MEETING, 1905.

PROF. R. L. MACKINTOSH, AUBURN, ALA.

The twenty-ninth annual meeting was held in Macon, the fifth and sixth of September. The meeting was presided over by the Hon. P. J. Berckmans, of Augusta, Ga., who has been the president of the society ever since its organization in 1876. The members say that it would be dangerous for a member to vote for any one other than Mr. Berckmans. It is needless to say that he was unanimously re-elected for the coming year.

The meeting time was changed this year, so as to allow the growers to market the crop before the meeting, but the change was unfortunate, because there were not as many present as usual. This was partly accounted for because of the fact that the fruit crop was light this year, and so many of the growers have been growing more cotton than usual. Cotton is bringing more than ten cents, so it makes them work to get the crop gathered. The labor problem is one of the important questions in this section. The negroes seem to be leaving the farms for the mines, and consequently there is need of more laborers.

Macon is one of the old cities, and the people take great pride in showing visitors over their beautiful city. I say beautiful, because of the care taken to keep the city in good condition. The streets are wide, and some have parkways through the middle, planted with trees, shrubbery, chrysanthemums, violets, etc. The business portion of the city is level, while the resident portion is on the high ridge back from the center. At this time of the year cotton is being marketed, and it is not infrequent to see hundreds of bales resting on the pavements, in the center, or along the sides of the streets.

The first paper presented after the opening exercises was by Dr. Wilcox, of the Alabama Station, on "Forestry in Its Relation to the Farmer of the State." The speaker emphasized the fact that fertility is the farmer's capital, consequently it should be the aim of all to maintain the fertility of the soil. The keeping of some lands in forests instead of farm crops was mentioned as one way of doing this.

The writer had the pleasure of telling the members what he thought should be the training given the young farmers and horticulturists of the state. It was hard for him not to think too much of the training given in the Minnesota Farm School and College of Agriculture.

One entire afternoon was given to papers from the staff of the state board of entomology. This board was established about eight years ago with the object in view of trying to keep the San Jose scale and other fruit pests from spreading. Their work has been of great value. The subjects discussed were: Improved sprays for the scale insects, crown gall, shot-hole borers and nematode diseases of the peach, and the woolly aphis of the apple. As the peach is the chief fruit grown in the state, so most of the papers dealt with its enemies.

In the evening Prof. T. G. Pearson, secretary of the National Audubon Association, gave an illustrated lecture on beneficial birds. After the lecture a branch Audubon society was formed.

"Marketing of Fruits," by Mr. Guy L. Stewart, was a valuable paper, and if his suggestions were followed there would be less complaint about the grading and packing of fruit.

Prof. Starnes, of the Georgia station, described minutely the life history of the ever present peach tree borer and suggested some new methods of controlling it. As the peach borer is one of the worst enemies of the peach, so all new and practical methods of eradicating it are timely.

The last paper read was on "Practical Irrigation," by a prominent grower, Mr. Mark Riegel. Even with the large rainfall it is often desirable to have water handy in times of drouth.

Secretary's Corner.

ARE YOU—saving fruit for the coming annual meeting of this society—on Dec. 5 to 8? See premium list on last page of this number.

ABOUT THE "MINNETONKA" APPLE—Those who bought trees for the Minnetonka find it to be identical with the Longfield. My neighbor bought six trees about ten years ago and not one lived long enough to bear an apple.

FRANK YAHNKE, Winona.

AN EXTRA EARLY PLUM.—On the 10th day of August Mr. C. M. Jensen, a member of our society showed good sized wild plums grown in the woods near his home, three miles east of Albert Lea, and the fruit was at that time over ripe. The tree will be closely watched another season.—L. P. H. HIGHBY.

GEORGIA STATE HORTICULTURAL SOCIETY.—A report of the annual meeting of this society, held September 5 and 6, appears in this issue. Our readers will be especially interested in this report as it is from the pen of Prof. Mackintosh, a life member of our society and for many years one of its strong working members.

ABOUT THE "MINNETONKA" APPLE.—"I have visited a few farms where 'Minnetonkas' are grown. I sold a few and have planted them myself. The apple sold here as 'Minnetonka' is an apple like the 'Gideon,' if not the same. Tree very hardy, upright grower, quality excellent for pies and cooking. I have also the 'Minnetonka' which bear the nicest 'Wealthy' apples for eating. The fruit does not resemble the nice pictures shown by sellers of that tree." Anton Wilwerding, Freeport.

SEEDLING PLUMS.—An excellent seedling plum was received in the secretary's office on September 11 from C. A. Sargent, Red Wing, and entered in competition for the Loring prize. It is a peach colored plum, a little short of 1⅜ inches, the required size, a freestone, peeling readily, of firm flesh and excellent flavor. On the same day specimens of five seedling plums were received from C. G. Patten, Charles City, Iowa. One dark peach colored specimen, marked No. 5, was a fruit of superior richness. The other plums were a dark red color, all of good quality and probably freestones, and no astringency about any of the lot. They varied in size from about 1¼ inches to 1⅜ inches and were taken together a remarkably fine lot of seedlings. So far none of this last lot have been entered for the prize.

CHERRY GRAFTED ON PLUM.—Prof. N. E. Hansen in a recent letter, speaking of the possibility of grafting cherries on plum, says: "In visiting H. A. Terry, of Crescent City, Iowa, the originator of the Hawkeye plum, in 1896, I remember his showing me some Early Richmond trees which had been worked some fifteen years before on hardy plum and were still in good condition. In northern Iowa some years ago I remember there were some cherry trees reported as doing well top-worked on hardy plum until twisted off by a severe windstorm. The trouble in top-grafting the cherry on hardy plum is the bark binding at the place of union, the grafting operation tending to dry up the bark, which comes off in strips around the tree. When the time comes for the deposit of new wood this dried, non-elastic ring will not give way and causes strangulation. Nurserymen prevent this by slitting the bark in several places with a sharp knife, cutting just through the bark. This is called "cutting the corset strings" in the nursery. The same trouble is experienced with other kinds of top-grafting, especially in dry seasons."

LIST OF AWARDS AT MINNESOTA STATE FAIR.—This list as published in this number is slightly incomplete in several particulars, but at the time of going to press the necessary information to complete it had not reached the secretary,

MORE ABOUT SEEDLESS ASPARAGUS.—As to the growing asparagus business, I want to say:

1. With me the seedless kind of plants is much the most productive and profitable.

2. Do other growers find it so?

3. If the seedless asparagus is the best kind to grow how can planters best get all seedless plants to set out? I suggest the division of tested and approved seedling roots as the quickest and surest way I know of. The only other plan is to dig up seed-bearing plants and fill the vacancies with common untested seedlings, which might prove to be the very same unprofitable seed-bearing kind.

4. If there was a demand for seedless plants, nurserymen would gladly grow and furnish such, of course at a higher in price proportion to the increase of cost and value. F. K. PHŒNIX.

APPLES FROM THE RED RIVER VALLEY.—A very nice plate of apples came to this office September 1st from the place of Peter O. Vaugen, Climax, Minn., consisting of Charlamoff, Wealthy Longfield, Whitney, Virginia and Brier Sweet, and Cheney and Compass Cherry plums. Climax being situated on the level land of the Red River Valley is in that section of the state not hitherto thought to be adapted to fruit growing, but there are many successful young orchards coming on in that section. Some of them have been bearing several years in a hopeful way.

ABOUT THE MINNETONKA APPLE.— "In the 'Secretarys Corner" of the September issue I find a question concerning the Minnetonka apple. In Yellow Medicine county, Minn., it turned out to be of no use. Byard bought twelve of that kind a few years ago; the last one will die this year—stem is about as thick as an ink bottle. The last tree of twelve had a little fruit, but it will not ripen on account of sickness. * * * may brag him ever so much as a hardy tree; I don't believe it. The two 'Greenings,' the 'Wealthy,' the 'Oldenburg,' and several other known sorts are the trees to plant In a few years this county will raise plenty of fruit." A READER OF THE HORTICULTURIST, Boyd, Lac qui Parle Co.

ERRORS IN THE SEPTEMBER HORTICULTURIST.—On page 322 of the September Horticulturist, in the article prepared by Mrs. N. S. Sawyer, entitled "The Flower Garden and Lawn in September and October," on the last line of the page referred to, there is a ridiculous mistake which was made after the final reading of the proof by the editor. In place of the line as it reads, substitute the words "mellow soil in which to expand," and the reader will get sense. The line as printed was intended as a correction of a similar line appearing eight lines above. The only way to have detected this mistake by the printer was to have re-read the whole proof. A proof is ordinarily read twice, and it is only in some exceptionally rare case like this that further reading is necessary. On page 324 the reporter's notes should be changed to read as follows: In the 16th line from the bottom of the page, in place of the word "soil" substitute the word "sand." In the 12th line from the bottom, instead of the word "straw" substitute the word "boxes."

HAVE YOU RETURNED THE SUPPLEMENT TO THE AUGUST "HORTICULTURIST?"—Some of the members have not yet filled out and sent to the secretary the blank form prepared for the purpose of securing certain general and particular information on important horticultural subjects, sent out as a supplement to the August number. IF THIS MEANS YOU, please take this matter up at once so that the same may be brought to an early conclusion.

A NEW SECRETARY FOR THE FORESTRY ASSOCIATION.—At a meeting of the executive board of the Minnesota Forestry Association held Sept. 7th, at which there were present Mr. Wyman Elliot, O. C. Gregg, Prof. S B. Green and A. W. Latham, Mrs. Lydia Phillips Williams, of Minneapolis, was elected secretary in place of Wm. T. Cox, who was compelled to leave the position on account of permanent removal to the national capital. A financial committee consisting of Wyman Elliot, Prof. Green and C. M. Loring was appointed to audit all bills in connection with this association.

AS OTHERS SEE US.—The following in reference to the fruit exhibit at the late Minnesota state fair appears in a recent number of the "Twentieth Century Farmer," published at Omaha.

"Leaders in horticulture are cranks, belonging to that class who insist upon trying to do those things that cannot be done, and to the disgust of the rest of us succeed in doing them. Through the efforts of these leaders and their followers there awaited visitors at the Horticultural Building at the Minnesota state fair a surprise in a magnificent display of fruits and vegetables that stands as a model for even the so-called natural fruit belt. There were apples, plums and grapes in a bewildering profusion, and while perhaps the number of varieties may not have been so great as shown in more favorably located exhibitions there was no limit to quantity, and no lack of quality was evident. To the writer there seemed, in the case of apples, to be a more fresh and attractive appearance than was presented at the Iowa state fair.

"But the show was not confined to the fruits mentioned. There were all the sorts, even peaches, shown at Iowa, and some others in addition. The Minnesota State Horticultural Society, the Owatonna Experiment Station, half a dozen nursery companies, as many county organizations and numerous individual exhibitors have by their combined efforts produced an exhibition of fruits that stands distinctly above any display made by any other industry of the state. They have brought about this remarkable success in the face of adverse conditions confronted by no other branch of work in the agricultural world.

"With almost nothing to start with, with a climate said to be impossible for fruit because of its rigorous winters, with difficulty in securing healthy tree growth and with discouragements of prevailing opinions - professional and unprofessional—these men have labored on with the unwavering persistence of Jean Valjean, with no encouragement beyond that which were the outgrowth of their own hopes, until today, and at this show, they have demonstrated the wisdom of their theories and taught the world a lesson in horticulture. The coming generation of Minnesota farmers will enjoy, in their orchards and vineyards, blessings that are not naturally theirs, and a long step will have been taken in the bringing of this particular portion of the earth's surface to its fullest state of productiveness."

ENTRIES FOR THE $1,000 SEEDLING APPLE PRIZE.—Three entries have been made for this prize so far this year, as follows:

April 13, A Harrold, Edina, N. Y.
May 13, A. D Brown, Baraboo, Wis.
Sept. 15, H. H. Pond, Bloomington, Minn.

AMERICAN POMOLOGICAL SOCIETY.—A little delay in going to press makes possible a brief reference to the biennial meeting of this society, at this date, Sept. 23d, a thing of the past. Besides the regularly appointed delegate from this society, Wyman Elliot, there were in attendance from Minnesota Prof. .S B. Green and the writer. We enjoyed meeting there especially Prof. R. L. Mackintosh and a large number of other friends, many well known for their valuable work in the horticultural field. Two of us returned home the night of Thursday, Sept. 22, following the close of the final session, but Mr. Elliot remained and went south that night with about fifty other members of the society for a five days' visit in the orchard regions of south Missouri and northern Arkansas, of which we shall hear, as also about the meeting, from him in the November number.

PREMIUM LIST, ANNUAL MEETING, 1905.

GRAPES

	1st Prem.	2d Prem.	3d Prem.
Collection	$5.00	$4.00	$2.00

APPLES.

Decayed or otherwise imperfect specimens should not be exhibited. They will not only not be considered in establishing the comparative value of the display, but their presence will detract from the standing of the exhibit.

	1st Prem.	2d Prem.	3d Prem.
Collection, not to exceed 10 varieties	$6.00	$4.00	$2.00
Each variety of apples included in the 1905 fruit list of the society, or in the 1905 premium list of the Minnesota State Fair (kept in cold storage)	.50	.25	......
Each variety of apples (or crabs) included in the 1905 fruit list of this society, or the 1905 premium list of the Minnesota State Fair (not kept in cold storage)	.50	.25	......
Peck of Wealthy apples, the fruit exhibited to be at the disposal of the meeting	4.00	3 00	2.00
Peck of Patten's Greening (same conditions as for peck of Wealthy)	4 00	3.00	2.00
Peck of Northwestern Greening (same conditions as for peck of Wealthy.)	4.00	3.00	2.00

SEEDLING APPLES.

Competition in seedling apples is open also to the western half of Wisconsin, the northern third of Iowa and all of North Dakota, Sonth Dakota and Manitoba.

EARLY WINTER SEEDLING.—The fruit shown must not have been kept in cold storage. A specimen of wood three years old (at least six inches long) taken from the tree bearing the apples shown, and a concise history and description of the tree and its fruits, must accompany each entry.

Competition is open to all except on such varieties as are being propagated for sale by some person other than the originator.

Premiums will be divided pro rata among all the entries commended by the judges according to the comparative merit of each as a commercial fruit. Premium $40.00.

LATE WINTER SEEDLING.—Same conditions as for early winter seedling except that if found necessary the fruit shown may be retained and final decision reserved till later in the winter. Premium $60.00.

Mrs. Lydia Phillips Williams (Secretary Minn. Forestry Association) "Finding the Lamp"
In a Hollow at the Foot of a Pine Tree on a Bluff Near Leech Lake.

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CREATING "DEAD AND DOWN TIMBER."

MRS. LYDIA PHILLIPS WILLIAMS, MINNEAPOLIS, SECRETARY MINNESOTA FORESTRY ASSOCIATION.

(The "story of the lamp," which illustrates the workings of the "dead and down timber" provision in the Nelson law. This law will again be in full force should the Morris Act be repealed.)

To make sentiment for the repeal of the Nelson bill the Minnesota club women planned an excursion to Leech Lake, which is within the forest reserve. The lumbermen in Minnesota are not all converted to conservative forestry, and gallantry somètimes is forgotten when "so many board feet measure" enter into the proposition. Our party numbered about fifty, and included Miss Dock, a member of the Pennsylvania Forestry Commission. There were two available steamers on the lake that were very good and one poor old house-boat. The manager had chartered the steamers for our use. Imagine our surprise on arriving to learn that the night before the boiler of the best steamer had been scuttled and put out of use and at day-break the other steamer was seen scudding off down the lake. A launch was sent flying after the steamer, and it was finally hailed and the captain asked to explain where he was going, and why he had broken faith with the ladies. "Oh," he replied, "a lumberman down the lake has engaged the steamer for a week."

Fortunately, a boiler inspector reached the town that morning, special providence, you know, and, resenting such ungallant treatment of the ladies, declared if it was possible the boat should be put in repair and be ready for use the following morning. Blacksmiths, plumbers and carpenters, all lent a hand, and by noon the following day the party was able to go aboard.

Our forestry friend from Pennsylvania was anxious to see the character of the second growth on the reserve, and seeing a bold bluff at that point, with Father Wright, chief of the Chippewa's and missionary at the agency for forty years, to act as guide, we made a landing.

Our astonishment can be imagined when we found each one of those beautiful old virgin pines burned at the root, just enough to bring it under the condemned list. Unfamiliar with the vicious workings of the dead and down law, we looked about to learn the cause of the fire. Not a leaf, twig or grass blade was scorched, there was no sign of tramp or camper, but on examining the burning in the noblest tree of all the group we discovered a small kerosene lamp almost melted down.

Father Wright sat at a little distance looking out at the blue waters of the lake over which for centuries the birch canoes of his people had glided so swiftly. We approached, and holding aloft the lamp, said: "What does this mean?" With a pathos in his voice that I shall never forget, he replied, "Dead and down Timber Act, burn, want to buy."

I assure you the old lamp was good campaign material. At our next state meeting, when our brothers were present, we told the story and exhibited the lamp and said, "Are not the Indians the wards of this nation? Shall we, through our laws, offer a premium for criminal practices? This lamp should cause the blush of shame to mantle the cheek of every honest voter in Minnesota and kindle a back fire of indignation that should wipe off the statutes such nefarious laws."

BIENNIAL MEETING, AMERICAN POMOLOGICAL SOCIETY, 1905.

WYMAN ELLIOT, MINNEAPOLIS, DELEGATE.

The twenty-ninth biennial meeting of the American Pomological Society, at Kansas City, Sept. 19, 20 and 21, was a very enjoyable and instructive occasion, and very well attended by members and delegates from eighteen of the United States and Territories and Canada. There were many professors of horticulture from various state experiment stations in attendance. The program was full of timely, instructive topics, the most important of which were considered. Quite a number of speakers were not present nor their papers read, but they will be printed in the biennial report, which can be had by sending $2.00 to Secretary L. R. Taft, Agricultural College, Mich., making the sender member for two years.

The display of fruits was very fine, although the exhibition room was quite limited, and being situated in one end of the audience room made it at times quite objectionable to those desirous of listening to the subjects under discussion. Many of the varieties were represented by extra large specimens, very highly colored. One fact was demonstrated: that the middle west and northwestern fruit belts were producing many kinds of exceedingly good quality. Many specimens on exhibition would hardly be recognized as true to name from their great variation in shape, color and large size. It could be plainly seen what the effect had been of different soils, climatic conditions and methods of management in changing the form from the true Eastern type. Another fact was brought out very plainly: that there are but few varieties of fruit capable of doing their best in all locations. Each grower must be an experimenter to find out what varieties are best adapted to and most productive in his particular locality.

Chas. G. Patten, of Charles City, Iowa, had thirty-one plates of seedling apples: one round red plum, quite promising; twelve plates pears; seven plates Grimes' Golden crossed on Patten's Greening, all green apples and showing very strongly the influence of this parentage on the Patten side of the cross. He had one very fine Malinda seedling, also five seedlings of Briar Sweet crossed on Pound Sweeting, and every one of them had proved to be sweet apples. His Eastman and Brilliant seedlings were very fine specimens. He was awarded a Wilder medal, an honor most worthily conferred.

The Minnesota State Horticultural Society was represented at the meeting by Prof. S. B. Green, Secretary A. W. Latham and Wyman Elliot as delegates.

The first meeting was held in the evening of Sept. 19. An address of welcome was delivered by Mayor J. H. Neff and responses by W. M. Dunlap and Parker Earle. In the absence of President Barry, the president's address was omitted. The treasurer's and secretary's reports were received, appointments of committees made etc., and we then adjourned for the reception and banquet, which was quite an elaborate seven course affair. Some fine speeches were made, in which the speakers tried to make the rest believe *theirs* was the best and only state in which fine fruit crops, men and beautiful women were produced. Prof. S. B. Green spoke for Minnesota on this occasion in his usual vigorous way.

Second day. The first topic was "Americana plums," which was very fully discussed by Albert Dickens, professor of horticulture in the Kansas Agricultural college. Prof. Munson, of Texas, said the Americana plum was a failure in his state on account of the sap starting so early in the spring; the crosses of Americana and Chickasaw were safer and gave fine results. The European plums were a failure north and south, while they succeeded very well along the Atlantic coast. Mr. Marshall, of Wisconsin, reported very good success in plum culture by clean cultivation and thorough spraying at the opportune time. This prevented attacks of curculio. Hon. G. B. Brackett said the Lombard was the best of all plums. C. G. Patten reported the Surprise a failure in Iowa, with but one reasonable crop in twelve years. Mr. Reel, of Illinois, reported the Americana varieties making fine healthy growth and bearing plenty of plums. Mr. Coburn, of Colorado, reported that western slopes gave good crops of plums while eastern slopes gave only medium crops.

"Cover crops" was the first topic Wednesday afternoon. It was considered imperative that there should be some kind of cover crop used for winter protection to the roots of all fruit trees. The cow pea had proven a wonderfully good crop, as it added so much fertility to the land when turned under in the spring. For those below lattitude 43 degrees it succeeds very well, but here in the north red clover and other crops must be depended upon for cover crops.

"Spraying the orchard," byE. M. Pollard, Lincoln, Neb., was very instructive. Spray first time before buds open, second time just before blossoming, third time as soon as the blossoms fall. This catches the first hatch of the codling moth. Spray later for second hatch. Formula used: four oz. Paris green to thirty-three gals. Bordeaux mixture, which is prepared by using four pounds of lime, four pounds of copper sulphate and fifty gals. of water. A good substitute for Paris green is four oz. white arsenate to one pound sal soda boiled fifteen minutes, using six pounds of lime to fifty gals. of water. Disparene was recommended very highly as less liable to burn the foliage, and a very excellent remedy for canker worm and codling moth.

Prof. Beach used four pounds copper sulphate to fifty gals. water and thinks this is the best strength to prove effective. For blight of potatoes use one lb. copper sulphate to ten gals. water; one lb. to one hundred and fifty gals. water for apples. On plums this will injure foliage. Thinks one lb. to 3000 gals. water for plums and cherries is safe. Recommends six oz. Paris green and six lbs. lime and three lbs. copper sulphate to fifty gals. water. A very essential feature in the use of a preventive for insect depredations and fungous diseases is the time of application. It should be commenced early before the leaves appear, and stronger material used; second spraying should be made when the blossoms just begin to show color; again as soon as the blossoms fall; then ten days later another very thorough spraying from two sides of the tree. The time when spraying is done has a good deal to do with its effectiveness. Spraying should be done four or five or even six times, and will pay big returns.

Parker Earle said the most effective method was in the use of disparene, or arsenate of lead, and is absolutely safe. Arsenate does not burn the foliage. Two-thirds of one per cent, out of 400 apple trees, were all that were injured by insects; ninety-five per cent were perfect apples. The question of spraying he considered one of the most important subjects that will be discussed at this meeting. Disparene is manufactured by Bowker & Co., The Merrimac Chemical Co., Boston, Mass. Prepare a lead paste, three pounds of which is used in fifty gals. of water. It costs fifteen cents per pound in 100 pound lots. This is a very effective remedy for the codling moth. Bowker's disparene is used five pounds to 100 gals of water. Spray as soon as blossom falls. For second hatch of worms spray 1st. to 5th of July. A preparation for making spray mixtures adhere to the foliage more closely was two lbs. rosin, one lb. of sal soda boiled in two qts. water for one hour. This mixture add to fifty gals. of water.

Senator Craig recommended arsenate of lime for fungous diseases, first spraying with a very strong solution before the fungous appears.

Those receiving best results sprayed early, with at least three thorough sprayings afterwards. Mr. Dunlap, of Ill., recommended by all means to do the first spraying before foliage started, afterwards as soon as the leaves open and just before blossoms open, and again in ten day for best results.

The topic of growing and marketing fruits, discussed by Mr. Williamson, from the Apple Growers' Congress, was very instructive and showed the importance of honesty in the grading and packing of all kinds of fruit. He is a grower as well as a salesman of fruits. He emphasized the early spraying of the trees to kill all germ diseases. He used one car load of vitrol and $1,500 worth of arsenate of lead, and considered the first spraying the most effective if thoroughly done. What every grower is striving for is "No. 1" in shape and color, and practical freedom from worm defects. Size not less than two and one-half inches for Ben Davis and such apples, and two and one-fourth for Fameuse and that class of apples. "No. 2" apples should be as free from defects as "No. 1" and consist of what are under size. All wormy fruits should go into "No. 3" grade and, if possible, be marketed at home. "Fancy" is a little better than "No 1" and will always bring top prices. A successful grower of fruits must also be an energetic, up to date salesman to reap best success.

Prof. H. H. Whetzel, of Cornell University, N. Y. gave a stereoptican lecture on a new light upon apple blight. He claimed that blight is a bacterial disease and is not due to fungi. He designates blight as blight canker, and gave us many illustrations of its effect on limbs, body and trunk of the trees and on the foliage, what he called "mouse-eared" in appearance. Affected trees blossom heavily, setting more fruit than the tree can mature. Indications are brown streaks in the bark and collar rot, seamy blisters, etc. There are five kinds of canker blight, always black. A remedial wash for disinfecting scabby spots on trunks and larger limbs is two-tenths per cent corrosive sublimate and six lbs. blue vitrol in fifty gals. of water, cleaning away all dead and affected bark and using as a paint. He had been making a study of varieties susceptible of blight and those that had been more immune. Some varieties were more resistant than others. In one orchard, out of two hundred trees only seven trees remained alive. He recommended to always top-work on non-blighting varieties. He named Wolf River as immune, and the Baldwin as very susceptible to canker blight. Those seeking further information on blight should send to Cornell University for the bulletin on blight.

There were several other subjects of interest discussed but time and space will not permit of reporting it at this time. I will try to say something at the winter meeting on the new method of grafting and give a short outline of my six days' trip through the Ozark fruit belt of northwestern Arkansas and southwestern Missouri.

MY EXPERIENCE WITH SEEDLING PLUMS.

G. A. IVINS, IOWA FALLS, IOWA.

(From the "Fruitman.")

The fruiting season of some thirty-five or forty seedling plums the past year gave promise of a number that are superior to their parents, some varieties showing a marked difference from the parent, while others were almost identically the same in size, color or quality of fruit. In this respect the Stoddard seedlings bore fruit almost exactly the same as its parent, but in tree and foliage there was a perceptible difference. The four Stoddard seedlings that bore their first crop of fruit the past season were a grand sight to behold. Each tree was bending to the ground with its load of fruit, and every time we picked we endeavored to test the difference in their fruits, but they all were of the same fine quality, with so small a difference that it could scarcely be perceived. Two of the trees bore fruit some larger than the other two, but the form and color of the fruit was the same.

The De Soto seedlings were the greatest success, as a number of them bore fruit double the size and retained all the fine qualities of De Soto, the fruit of several of the trees being a golden yellow without a tint of red. The trees differed greatly in form and foliage and had little resemblance to De Soto. The tree I regard as the best is very vigorous, a wide spreading tree which seems to be a distinct type, the fruit being large and fine. In the way of a novelty one De Soto seedling was late in ripening and was of medium size and only fair in quality, but it was a beautiful sight to see its load of charming, glossy, dark colored plums. Black Ben Davis in color is no comparison to them. Many of the De Soto seedling plums were too small to be of value.

We decidedly gained a point on our Wolf seedling plums, in size and quality. Two of the Wolf seedlings bore the largest plums we have ever picked from our cultivated native varieties. In color they are red, in shape nearly round, and are almost freestones. The most of them had rather thick skin, which might be considered curculio proof.

The Wyant is another variety we have improved in tree, size of fruit and quality. The trees are more vigorous, and have a better upright growth, while the foliage is somewhat different. One of my Wyant seedlings is a perfect freestone, and we regard it as the best plum we ever ate, unless our taste and judgment deceives us.

Only a few of our Miner seedlings bore fruit, and those that bore were not very promising; still there was one that bore very large fruit, was later than Miner and was nearly a freestone, but was too astringent to be called good in quality. I had about six seedlings that were late; and some of them were as late as Miner. Should they prove valuable, they will be good fertilizers for Miner and would give us more late plums.

Every promising seedling was numbered, and when we cut our scions we had seventeen varieties for propagation.

To the average man, the years it requires to originate fruits and give them a thorough test is not interesting, but to the man who wants to see a new creation bloom and bear fruit every year of his life there is a concealed pleasure unknown to the selfish world with but one idea, and that is dollars and cents. We fully realize the years of patience it takes to do this work, the anxiety we live in from year to year and the disappointments we must encounter, but with a firm determination and tenacity of a bull dog the work will be made a success.

THE RELATION OF GAME PRESERVATION TO FORESTRY.

SAMUEL F. FULLERTON, MINN. STATE GAME WARDEN.

The forests are the natural abiding places for game; destroy your forests and you destroy your game. Whether your forests be upon the mountains' rocky slopes or the level stretches of the plains, there you will find game congregated for shelter and for food.

The people ought to be taught to take home to themselves the necessity of preserving the forests that today are left and see to it that intelligent efforts are put forth to reforest the cut-over lands not suitable for farms. We have millions of acres in Minnesota of just such lands which in time would bring the state a splendid revenue and to the lovers of field sport a game supply that would be almost inexhaustible, and afford not only sport and recreation to the tired and over-worked business man but would be an asset to the state in dollars and cents equal to that of our forests. The game and fish of Minnesota are annually worth to our citizens in dollars and cents over a million dollars. Is not this a heritage that we ought to preserve, not only for ourselves, but for our children who come after?

SAMUEL F. FULLERTON, Minnesota State Game Warden.

If what is left of the forests of Minnesota could be protected and suitable reforesting take place on cut-over lands, we would be sure of our game supply for all time to come. In fact, every *game* protector ought to be a *forest* protector, because both go hand in hand.

Every fisherman ought to be a forest protector. The more forests we have had at the head of our streams and land around our lakes, the more flow of water we will have and, consequently, the more fish. In fact, the forest is necessary to the life of our fish and game supply, because without it neither can exist for any great length of time. The success that is being met with yearly with any attempt at forest preservation is a full answer to the question. We see the benefits of it here right in our own state, in our little Itasca Park, a small area, only seven miles square; but already the deer and moose and feathered game know they will not be molested there and flock there for shelter and protection. What would it be if it was four times as large? The surplus that would be left after filling this park and spreading out to the other parts of the state would insure splendid shooting.

Perhaps the greatest example of this is the Yellowstone Park. There the woods have been left undisturbed and the game within to grow and thrive under absolutely undisturbed and natural conditions. Of course, we could take many lessons from Europe along this line, in regard to *forestry* and *game* protection combined.

Had the government set aside the 800,000 acres of land and water known as the "Chippewa Reservation," not only the water supply of the Mississippi would have been conserved for all time to come, *but we would have had the greatest game preserve in the world today.* In that 800,000 acres a game nursery would have been created that would have been inexhaustible and been one of the greatest revenues the state of Minnesota could have had.

A great many people laugh at the idea that the game and fish of our state amount to anything. They say it was only made for a certain few fellows who have got the leisure to go out to hunt and fish; but no greater mistake was ever made. I claim (without fear of contradiction) that the game of Minnesota played a more important part than any other agency in making the homes of the settler and sustaining them in the wilderness when clearing their land; and the hardy pioneers who came to Minnesota thirty, forty and fifty years ago have time and again borne testimony to this fact, that without the game they never could have lived and blazed the way for the men who are to come after.

I might mention other places, such as the Adirondack forests, but we have lots of examples in our own state to draw from.

The state of Maine in their annual report two years ago estimated that $13,000,000 was left in the state of Maine by men who came there to fish and shoot. If half of that was left, is not the preservation of the game worth something to the state? And Maine does not begin to be the game and fish state that our state is, because we have got *the greatest state in the Union* and got more lakes teeming with the choicest kinds of fish than any other state. But there are men today (and even men in *authority* holding *high* positions) who would cut every stick of timber if they could make money out of it; drain every lake and destroy every fish therein if some one could tell them that there was money there. *I want to appeal to that kind of men* and show them that there *is* money in game and fish to the citizens of Minnesota if they will only preserve it.

Camping among the monarchs of the forest—in Northern Minnesota.

I would like to say to every man who believes in the enforcement of the laws that govern game and fish, that he ought to be a forest protector and a hearty supporter of everything that goes to preserve the forests of our state, because without the *forests* we cannot have the *game,* neither can we have any *fish;* it is the very salvation of both. In fact, it is the salvation of our water supply, and without our water supply we cannot have any fish, and without cover we cannot have any game.

To show how thinking men who believe in game protection and have advocated it all their lives think about forest protection, I will quote the language of a man, who, perhaps, is known better than any other man in the United States, and that is Alexander Starbuck, who has been the president of the Cuvier Club of Cincinnati for the past nine years and is one of the foremost game protectors in the country today. He says, in his closing address in talking about game protection: "To give absolute protection, it is, I think, necessary to add another plank to our platform, and that is *forest preservation.* For with its destruction everything goes, bird, fish, stream and all that thrives therein, even the soil itself. For conclusive proof of the latter read the histories of the Roman Empire, Syria, Persia, Asia Minor and portions of Italy. All of these regions were once timbered countries and richly productive. Now they are horrible deserts, seamed with ravines and gullies, piled with ridges of sand, utterly incapable of reproducing the wood which once covered them. Such appalling destruction fills all human hearts with sorrow and is a subject that should arouse the attention of every loyal citizen with a view to looking to our congress for its speedy protection and preservation for all time."

Prof. Green: I am especially glad that we have this paper from Mr. Fullerton. It is right along the line of those who are interested in the preservation of game in the woods and those who are interested in forest preservation. Their interests are the same, and while we have been working along separate lines, yet here is an overture from the executive officer of the state game and fish commission to unite forces in a way that may accomplish a great deal of good and that will certainly cement a friendship between this game and fish commission and those that are in love with forestry in the state. Mr. Fullerton told me he was in favor of something of this sort, and he thought that forestry and the game and fish commission would never be properly in harmony until we had a common ground on which we could come together.

VEGETABLE SPONGES.—One may grow sponges in his own garden.—The vegetable sponges that are commonly sold in drug stores and used in the bath room are produced by a vine like a cucumber which anyone may grow in his garden. In tropical countries these vegetable sponges are often used for dishrags (being particularly useful for scouring pans and kettles), and it has been suggested that housewives in the North should "grow their own dishrags," since a clean sponge could be used for each dish-washing performance and then thrown away, thus relegating to history the rubbing out of greasy cloth.

THE CANADIAN FRUIT MARKS ACT.

PROF. SAMUEL B. GREEN.

The Canadian Fruit Marks Act has for its object the establishment of a high grade for Canadian fruit. It has been very helpful, and in the English market, on account of this law, Canadian fruit is ranked even higher than fruit from the United States.

At the recent meeting of the American Pomological Society the subject of a fruit marks act in the United States was discussed at considerable length, and it was the general opinion that such an act could hardly be made compulsory, but if growers were given the opportunity of availing themselves of it and could mark their fruit as inspected, many of them would be glad to have their fruit properly inspected; for it is well known that fruit that is certain to be up to grade will sell much higher than that which is bought on the market, where the buyer largely takes his chances.

The two principal clauses in the Fruit Marks Act are as follows, and state what good fruit is and what shall be considered false representation:

"6. No person shall sell or offer, expose or have in his possesion for sale any fruit packed in a closed package, upon which package is marked any designation which represents such fruit as of No. 1 or XXX, finest, best or extra good quality, unless such fruit consist of well-grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape and not less than ninety percent free from scab, worm holes, bruises and other defects, and properly packed.

"7. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in any package in which the faced or shown surface gives a false representation of the contents of such package; and it shall be considered a false representation when more than fifteen per cent of such fruit is substantially smaller in size than, or inferior in grade to, or different in variety from, the faced or shown surface of such package."

MOWER COUNTY FRUIT IN 1905.

GEO. W. STRAND, TAYLOR FALLS.

The present season is rather an "off year" for the apple and plum crop, but notwithstanding that southern Minnesota orchards have been yielding a bountiful supply of apples to more than supply the local demands. The fruit shown at the recent Mower County fair, at Austin, Minn., the county seat, showed more evidences of scab and insect ravages than usual, but on the whole was a very instructive advertisement for that section.

Mr. F. W. Kimball, of that place, has taken much interest in testing promising and desirable varieties, and his orchard is an interesting one to visit. Most of his trees consist of Hibernals and Virginia crabs top-worked to better and less hardy sorts. He is inclined to think that the Hibernal is by far the best tree to plant for that purpose, as it has fewer limbs to graft and gives an extra strong crotch and trunk. Our crabs, as a rule, are more susceptible to both blight and scab, and, as both diseases are contagious, we should be more cautious about planting such varieties among those not as subject to it. Many of the Russian apples, such as Repka Malenka and Blushed Calville, were among his worst blighters this season and the first to succumb. As a section becomes older and more fruit is grown, the necessity for spraying the trees is more apparent, and it is advisable to at least leave every other row far enough apart so that there will always be room to drive between the rows. Mr. Kimball advises setting about sixteen by twenty feet apart, having alternate rows at least thirty feet apart. The relative value of top-worked trees as compared with ordinary ones of the same variety is plainly evident in his orchard. It is well known that many of our best late keepers are shy and tardy bearers when ordinary nursery trees are set out, but when a tree is top-worked to the same variety it will usually commence bearing the second or third season and be even more prolific than one often desires to see. For a variety that is only regarded as semi-hardy in this section, his Grimes' Golden trees are models of thrift and well laden with a fine crop of fruit. For commercial purposes Mr. Kimball was especially enthusiastic over the Red Warrior. This variety is very highly colored and comes on between the Duchess and Wealthy. The fruit is uniformly large, and although not of as good quality as the Wealthy it will sell on sight and commands a good price. Gilbert and Brett No. 1 are varieties of the same season that should be more extensively planted.

Another interesting orchard is that of Mr. Thos. Lightley, near Oakland. This is a seedling orchard, set out a number of years ago, from seedlings sent out by the late Peter M. Gideon. An exceptionally large number of the trees are of high merit in both tree and fruit and are well worthy of propagation. We have so many fall and early winter varieties now that our nurserymen are rather cautious about adding to the legion of varieties of that season unless the new sort is of exceptional merit. Mr. Lightley has one crab in the lot, however, that commands attention because of its freedom from blight and scab. It is an upright grower, thrifty and otherwise as perfect a tree as could be desired. The trees were not in full bearing this season, but the crab mentioned is an annual producer of a fruit that would command a ready sale on any market. He also has some fine fall and winter varieties that are well worth watching. It is from among such seedlings that we expect to better our present fruit list, and more seedling orchards should be planted in all sections.

A noteworthy observation in this orchard is the power some trees have of establishing a new root system when given a chance, even after being seriously damaged. Several years ago many of these trees were girdled by mice in the spring, and Mr. Lightley despaired of saving them. They were thoroughly waxed, however, and then the earth mounded about the trunks. At present the mound about many of them has been scratched away disclosing the roots that have been sent out from above the wound. The trees show little or no indications of decay and to all apearances are as well or better off than ever.

REGULAR MEETING, NATIONAL COUNCIL OF HORTICULTURE.

H. C. IRISH, SECRETARY, ST. LOUIS, MO.

The first regular meeting of the National Council of Horticulture was held at the Hollenden Hotel, Cleveland, Ohio, Wednesday, October 4th. Meeting with the representatives of the preliminary organization were the delegates from the American Association of Nurserymen, the Society of American Florists and the American Seed-Trade Association.

The occasion of the meeting was opportune, it being the week of the annual meeting of the American Civic Association, and the public sessions of this body, and the consultation afforded with its officers, made clear to the delegates of these national societies the possibility and the great opportunity for exploiting horticulture through the public press—aside from the horticultural council work, which seemed to promise great and immediate results in all lines.

The possibilities of the work of the council was discussed in considerable detail. Its standing in case its influence might be needed in a national way on questions of customs, postage or like work with the transportation companies; its power internationally considered on questions of nomenclature and other similar lines.

The delegates from the national bodies above mentioned, while having no authority to bind definitely their organizations, did however express themselves as fully satisfied that great benefit might accrue to their societies through the plans proposed if rightly worked out, and all pledged themselves to recommend to their respective societies that a union on the general plan outlined by Professor Bailey for the formation of the council, in July last, be carried out as early as practical.

But the question of promoting horticulture in a broad way on the nursery, florist and seed lines appealed so strongly to those present that it was decided (pending the action of these three societies themselves at their next annual meetings, which will not occur for many months) to make a good preliminary trial of the proposed "press news" by means of private subscriptions to be taken up from the leading members of the above trades, firms largely interested in horticulture in their respective lines. To this end a letter was ordered to be prepared, which should be sent out under the heading of the National Council and signed by its officers. The letter to the leading florists to be signed and sent out by Mr. Philip Breitmeyer, representing the Society of American Florists; Mr. J. H. Dayton, of the Storrs & Harrison Co., for the American Nurserymen's Association; and by Mr. C. E. Kendel, for the American Seed-Trade Association.

It was believed that by means of such letters, requesting a nominal contribution from prominent firms, this experiment, which has worked such wonders for the benefit of the American Civic Association, could be tried in a similar way for horticulture, and the results when laid before these associations at their next annual meeting would afford them good and reliable data on which they could intelligently decide regarding their support of the proposed National Council.

The meeting was greatly aided by the advice of Mr. J. Horace MacFarland, president of the American Civic Association, and Mr. D. J. Thomas, of Springfield, Ohio, of the same association, and who is to be credited with the preparation of much of the news matter which has been sent out by that association. Mr. J. C. Vaughan acted as chairman of the meeting, and Mr. H. C. Irish, secretary. Among those present during the sessions were:

J. C. Vaughan, H. C. Irish, C. E. Kendel, J. F. Sullivan, J. A. Griffith, Philip Breitmeyer, J. H. Dayton, J. Horace MacFarland, Wm. Gammage, D. J. Thomas, Adam Graham.

Letters and telegrams were read from:

Professor John Craig, Professor L. H. Bailey, Professor L. R. Taft, Professor W. W. Tracy, Professor S. B. Green, Professor E. J. Wickson, Wm. Scott, T. V. Munson, T. C. Wilson (Sec'y. Am. Apple Grower's Congress), E. Albertson (Pres. Am. Assoc. of Nurserymen).

FORESTRY AS RELATED TO THE FARM.

MRS. LYDIA PHILLIPS WILLIAMS, MINNEAPOLIS.

When your president informed me that he had reported to the committee my subject as "Forestry as Related to the Farm," he assured me it imposed no obligation to stick to the text, but that I was to say anything I pleased upon any topic I might choose. We have a lurking suspicion that he thinks that is woman's way, and for two reasons we shall exercise our time honored prerogative: first, that your president be not disappointed and, secondly, for the reason that your program is weighty with the technical knowledge of experts.

The last speaker has made us shiver with fear, as he has pictured the poverty of the state board, and its only recourse, the state's purse just after a general election, with politicians in charge of the key. We think the pot of gold at the end of the rainbow scarce less distant than the needed appropriation to make forestry work in Minnesota effective, therefore it shall be my happy privilege to bring you a word of good cheer and greeting from the General Federation of Women's Clubs, a great reserve force, "800,000 strong," that is organizing in thirty-eight states of our Republic to march to the support of the overworked forestry regulars and time honored veterans, like your president, who has grown gray in the service but is still battering away at the breastworks of prejudice, outflanking moving battalions of greed and storming walls of apathy and ignorance. These recruits you may regard as the awkward squad, but you must admit that their "long bow" has sometimes sent telling shots into the enemy's camp and matched in forestry warfare their brother's ballot-tipped, silver-burnished weapons.

Pardon the repetition of an oft-told incident, in connection with our forest reserve campaign, which is to the point. When the stress came, and news reached us that some of our Minnesota members in Washington had gone over to the enemy, the club women concluded it was desirable to send representatives to interview our Congressmen. On reaching Washington, we first sent our cards to a member with whom we had a personal acquaintance and were received most graciously with this greeting: "When did you arrive?" "How did you leave my constituents, and what can I do to enhance the pleasure and profit of your visit?" But as soon as we mentioned the forest reserve, the atmosphere seemed suddenly struck by a nor'easter', and the mercury fell as qiuckly as at Chilkoot Pass, and in icy accents these words fell upon our ears: "Well, ladies, I'm not much interested in that forest reserve scheme, and I don't think my constituents are!" We replied: "Are we not your constituents?" "Oh, yes, of course I want to please the ladies," he answered, and triflingly added, "but you know the mosquitoes are too thick!" Disregarding his trifling remark, we said: "The women of Minnesota are desperately in earnest in this matter. We represent the State Federation of Women's Clubs, which has a membership of between six and seven thousand, and you know that six or seven thousand women represent collectively six or seven thousand husbands and a few thousand sons, who will possibly vote as their fathers vote. We grant you, the mosquitoes are thick, but they could hardly disable you for your congressional duties, but beware of setting six or seven thousand bees buzzing in women's bonnets." And, strange to relate, the mercury began to rise until the atmosphere was quite tropical.

Some two weeks later, having retired from the field, we dared to send a batch of petitions to this same member and received this gracious answer: "Yours at hand, petitions submitted to the house and referred to the committee on public lands, and I desire to assure you if I can advance the interests of the forest reserve movement in any way command my services at any time." Do not think our interview with the member was intended to savor of intimidation. We simply stated facts and gave a little kindly information. You know a woman has no "axe to grind"; she just speaks out what is in her heart, and so sometimes it carries weight—being a club woman, of course, it carried weight. Do not some present recall the fact that to quiet the home guns and restore peace to the community, the voters had to sign our petition to Congress for the forest reserve and write their Congressmen to support the Morris Bill?

As regards the work of the General Federation of Women's Clubs in the matter of forestry, I would state that forestry was added to our work only three years ago, but the committee questions if any other department of the General Federation can show so great an increase of interest during the three years as that of forestry. Thirty-eight states have, where it was not already a department of work, added forestry, and the committees are enthusiastically spreading the propaganda of tree-planting, forest preservation and irrigation. Like a prairie fire, interest among State Federations in national and state movements for the preservations of large blocks of forests is spreading and blazing up here and there, from the cypress groves of California to the spruce clad slopes of New Hampshire.

Forestry as apprehended in our work covers both arboriculture and scientific forestry. A very general activity is manifest throughout the length and breadth of the country in arboriculture, or tree-planting for decorative purposes; parks, cemeteries, school grounds, highways and treeless plains in rural districts, towns and villages, are coming into their inheritance of beauty and beneficence through the grateful shade and presence in their midst of oak and linden, larch and chestnut, palm and pine, as numerous instances in the state reports testify. Not always have the clubs taken the initiative, but all are actively cooperating, and in many cases they are the originators of forestry movements.

The work of the Thursday Club of St. Paul deserves especial mention. The club last spring obtained the consent of the board of education to make an appeal, through the teachers of the public schools, to the children to purchase and plant fruit trees on Arbor Day, which the club agreed to furnish at small cost. The park commission cooperated and allowed each child who desired to plant his trees in one of the city parks to do so and tag it with his name. The result was the purchase and planting of 14,000 fruit trees by the children.

In the San Diego district of California, out of twenty-six clubs nine have taken up the study of forestry. There have been tree-plantings, and the San Diego clubs have raised $5,000 to improve their 1,400 acre park. Beaufort, S. C., reports twenty-five miles of clear hard-shell road, generously provided with young shade trees, and a Delaware club has planted an avenue of trees one mile long, reaching from one town to another. The Massachusetts clubs are giving valuable assistance in fighting the brown tail and gipsy moth. The women of Salem have aroused public interest, and the children have gathered and burned 375,000 moth nests, and adjacent towns are following Salem's example. Salem's latter day burnings are to be commended.

Brothers, take courage! we'll help you build your monuments along our broad highways.

I regret that shortness of time prevents a worthy discussion of "forestry as related to the farm." Since the phrasing of the subject is such a happy conceit, I should like to trace the kinship closely between forestry and the farm, or the home, for "farm" is but a synonym for "home", and home must be something more than a treeless acreage and a sun scorched shelter, if sons and daughters are to remain contentedly beneath the rooftree.

We recall a drive on our treeless border from Barnesville to Fergus Falls, and as we passed some of those sun-baked, dust-blown, wind-swept, shelterless abodes of desolation, with plowed ground reaching to the very doorsteps, we could but exclaim: "I should go raving mad if obliged to live here." The following day we were taken through the asylum at Fergus Falls, and we asked: "Where do all of these women patients come from, and what is the caûse of their insanity?" and received the answer: "They come from just such homes as you saw yesterday that you said would drive you to madness." Overwork, monotony and lack of cooling shade and restful coloring is the cause of much insanity. Is it not truer economy for state and nation to spend millions for forestry and irrigation rather than build madhouses and people them with our producing population?

"Forestry as related to the farm"! Why the kinship is so close and so necessary from every viewpoint, we can no more divorce the two in thought than we can disassociate home and mother. What are the enhanced values that will survive the collapse of a boom and prove a permanent asset? To a would-be purchaser what improvements appeal to him the strongest, a pretentious house or a simple cottage with wood lot well under way, that shall furnish future fencing, fuel and building material; a fruit orchard, a highway frontage of trees, a flowering hedge row for bees and a few fine food trees for birds. And these latter are as essential as the former if we are to have honey to eat and bird music to delight the ear.

We are startled at such facts as these: that "the earth would become a desert in nine years but for the insect-eating birds;" that "the boll-weevil, now costing Texas $10,000,000 annually, threatens the entire cotton crop of the country and its dependent industries;" that "unintelligent lumbering and consequent fire and flood threaten the wood and water supply." Where shall we look for help? The homes of Minnesota that today furnish the students of our agricultural college realize the vital, necessary relation which must exist between the different phases of forestry and the farm, and in this student body rests our hope for the future.

This subject as your president phrased it, "Forestry as related to the farm," is like some great Bible text or grand bit of imagery that preaches its own sermon, delivers its own message and needs no exposition, because it is a masterpiece in itself, full of suggestive lessons and pictures of prosperity, beauty and contentment.

Over against a sun-blistered shelter it presents a cool, leaf-shaded cottage. Over against a tiring stretch of ploughed ground or wide area of pasturage, with its complement of hot, thirsty herds, it presents a varied landscape, single tree or family groups, offering grateful shade to man and beast, while not far distant rises the leafy grove with its berry patches, while birds and bees are busy storing up for us their contribution of sweetness and song.

If not so far afield would our vision stray—the old maple on the lawn furnishes the picture of a hot, midsummer afternoon. Beneath the grateful shade the babe in the cradle, fanned by the cooling breezes, sleeps on, while the contents of mother's mending basket are gradually reduced. Father catches a restful nap after the mid-day meal or reads his last farm journal. Kittie plays at housekeeping with her dolls, Jack mends his cart or swings in the hammock, while the future club woman perched in the branches or wide old crotch of the maple wanders with "Alice in Wonderland."

If it be a winter scene, the picture is scarce less attractive or less indebted to the forest contribution, for the snapping and crackling, and pungent and resinous fragrance and rosy glow from the wide mouthed fireplace are all furnished by the birch, beech, maple, hickory and pine knots from the home woodlot. The very thought of such inviting warmth makes one's olfactory nerves repudiate the heat blend of coal tar and laundry suds many of our steam and hot water plants furnish us poor denizens of the town. Finally—as I have said, the text preaches its own sermon— there should be no farm without its woodlot.

THE BLUE JAY.

MRS. EMMA F. BENSON, LAKE CITY.

"You call them thieves and pillagers, but know
They are the winged warders of your farms,
Who from the corn-fields drive the insidious foe,
And from your harvest keep a hundred harms."
—Longfellow.

Next to the Robin, the Blue Jay is probably the best known of our common birds. His large size, showy plumage, alert, fearless manner and harsh voice uttering his frequent calls, make him conspicuous wherever he may be. The Jays are quite aristocrats among birds, as they belong to that large and important family which includes also the Ravens, Rooks, Magpies and Crows. This family has always been noted for possessing unusual intelligence—so much so that "some systematists would place them at the top of the Avian tree, and if their mental development be taken into consideration they have undoubted claims to this high rank" (Chapman).

Jays are widely distributed, being found in nearly every part of the world, but our own American Blue Jay, the most beautiful of them all, makes his home only in the eastern part of the United States. From the Atlantic to the Great Plains, from Florida to Newfoundland he may be found, and he is said to be so good an American that he never visits a foreign country. Blue Jays are resident throughout their range, but occasionally move from one locality to another, after the breeding season is over, in search of food. That they remain with us through our long, cold winter is a great point in their favor. In Florida the place of our Jay is taken by one some smaller and less vivid in color, called the Florida Jay. In the west, the long crested Jay, a much darker bird, is found; while in the northern part of the country every woodsman and hunter knows well the Canada Jay, at once the amusement and vexation of the camper. This bird with its Quaker-like garb and un-Quaker-like ways is known by many names: Moose-bird, Camp-Robber, and more generally Whiskey-Jack, or Whiskey-John, form his Indian name Wis-Ka-tjon. The strong characteristics and varied talents of the family appear in each and every species, so that what is told of the good or bad qualities of one applies in a greater or less degree to each of his cousins.

Ravens, Magpies, Crows and Jays, while held in high esteem for their ability and at time almost uncanny shrewdness, have always been egarded with suspicion and often designated as thieves, robbers and assassins. While confident that the evil found in them is more than balanced by the good, we must admit there is some foundation for the charges brought against them. Our Blue Jay does not escape censure, as he possesses his share of the family faults. The worst charge brought against him is that of disturbing the nests of smaller birds, destroying their eggs, and even making a meal of the nestlings. Proof of his wickedness in this respect may be found in almost any bird-loving community, the spring months rarely passing without some sad tale being told of the tragical end of a much prized Blue-Bird, Wren, or Vireo family. Even the nests of Robins are not immune from Sir Blue Jay's attacks when he becomes possessed of a craving appetite for game.

Early one spring, when the treasurer of a certain nursery company took possession of her new up-stairs office, her attention was attracted to a pair of Robins building their nest in a tree opposite her window. Although quite a distance from the building, the nest was so placed that nothing prevented a perfect view of their preparations for housekeeping. Each day the pleasure of watching the little domestic scene increased; the songs of the father-bird and the mother's protection of the eggs through hot sunshine and cold wind and rain were an unfailing source of interest which would undoubtedly increase as the young birds passed through the various stages to maturity. But one morning there was a great commotion in the Robin's tree. A Blue Jay had discovered that the young birds were coming out of the shell and was proceeding to get in his deadly work. Then ensued a series of shouts from the office window and a clapping of hands and pounding on the window-sill, all of which having no effect, there followed in rapid succession a shower of rulers, little books, big books, anything throwable the office afforded. The occupants of the lower rooms, seeing these articles come sailing down in such an impetuous manner, thought there must be either a fire or a case of sudden insanity, and great was the excitement for a time. The rousing of the whole office force, however, was too late to save even one nestling or egg,—the happy little home was broken up beyond redemption. The cool way in which the bird persisted in his work, with missiles flying all around him, was highly exasperating, and then and there the Blue Jay lost one good friend whom he can never hope to regain.

It is hard to tell whether attacks on the nests of other birds are premeditated or the result of sudden impulse. In this case it seemed as though the accidental discovery of the young bird was too great a temptation to be resisted, but one instance within our knowledge showed cool calculation on the part of the cunning Jay. A large colony of English Sparrows had their nests in some ornamental work a few feet below the cornice of a three-story brick business block on the main street of a busy little town. When the young birds began to appear, a pair of Blue Jays came every day regularly and made a raid on the nests, each time carrying off a newly hatched young one. They would hop along the cornice, occasionally stopping to crane their heads over the edge, until they had located just the proper nest; then one swift downward swoop, and they would be off with their prey, utterly careless of the clamor raised by the outraged sparrows.

If raiding nests were the constant habit of the Blue Jays, our song birds would soon become extinct, but the proportion of nests disturbed is very small compared with the numbers of Jays found in both country and town. Olive Thorne Miller tells of watching closely a large number of nests of various birds, among them two Blue Jays' nests, and no harm was ever attempted by the Jay. On the contrary, he acted as a sentinel and gave warning of the approach of any cat or other bird enemy.

The Blue Jay is very interesting in his own domestic life, is an affectionate spouse, a careful and devoted parent and has many fine qualities, which makes it seem all the worse when he does an injury to other birds. Some one has said that he is "as destructive as a monkey, as mischievous as a small boy and as deft at hiding as a squirrel." The scientific report on the Blue Jay, issued by the Department of Agriculture, is very favorable to the bird. Nearly three hundred stomachs were examined, special search being made for traces of birds or birds' eggs, with the result that shells of small birds' eggs were found in three stomachs and remains of birds in only two. The report also shows that Jays eat many noxious insects, grasshoppers, caterpillers, etc.; that its favorite food is mast, acorns, etc., and that it does very little harm to agriculture, since all but a small amount of the grain eaten is gleaned from the fields after harvest.

In "The Succession of Forest Trees," Thoreau adds his testimony to the statement made long before by the venerated William Bartram: "The Blue Jay is one of the most useful agents in the economy of nature for the disseminating of forest trees. Their chief employment during the autumnal season is foraging to supply their winter store. In doing this they drop abundance of seed in their flight over fields, hedges and by fences where they alight to deposit them in fence holes, etc. It is remarkable what numbers of young trees rise up in fields and pastures after a wet winter and spring. These birds alone are capable in a few years' time to replant all the cleared lands."

There is great difference of opinion as to the possibility of taming the Blue Jay. Some say he makes an interesting pet, while others pronounce him "unsociable and untamable." Mr. Oliver Gibbs, writing from Melbourne Beach, Florida, gives us the benefit of his interesting experience as follows:

"One of the first things we did on taking a cottage here last December was to put up a bird food-box on the corner of the back porch. The first bird to get into it was the Florida Jay, pet name 'Jack.' There were soon quite a number, and when we sat out there to sun ourselves, they would come into our laps and eat out of our hands. Besides the Jacks we called around us the Cardinals, the Jorees, the Mocking Birds and a few other sweet singers, but none came to our hands but the Jacks. * * *

"In March, 1904, I began clearing up the place where I am now summering, and have lived alone here, 'keeping bach.' It is an old pineapple plantation, deserted to take care of its own mortgage after the freeze of '95. There was a house on it, into which I moved, surrounded by scrub timber, except the Indian River frontage. No human being seen here for weeks at a time except myself and an old colored man I had to help me daytimes. It was a good place to get acquainted with all the wild things, more especially the birds. At first all were shy, and it was weeks and weeks before I could get a Jack onto the porch. I put up a bird box and table a few rods away from the house, which a pair of old Jacks, having a nest close by, took possession of and fed their young from. As soon as the young ones could fly, they came to this table, and it was only a day or two before they 'got onto' who supplied the crackers, and then they would light on the box, open their mouths, drop their wings and talk baby talk for crackers, looking towards the house until I would go out and feed them. A few days afterward I quit putting crackers in their box, but scattered them in broken crumbs on the veranda floor.

"You should see 'my summer boarders, the birds' as they are today. The two old Jacks and their four young ones come to my screen doors, look in and ask for crackers a dozen times a day. When I go out and sit down in my chair they are all over me,— on my head, shoulders and knees. They pound the bald place on top of me, not too hard, they just give little love taps, don't want to hurt me; pinch my ears, peck at my gold finger ring, and 'punch with care' my sleeves and pantaloons; and when I am at work in the garden they keep me company and ride on my hat. The two old ones have another nest now, for a second brood, and I guess I am booked for a lot of Jacks to buy crackers for this fall and winter."

The Florida Blue Jay, familiarly called "Jack."

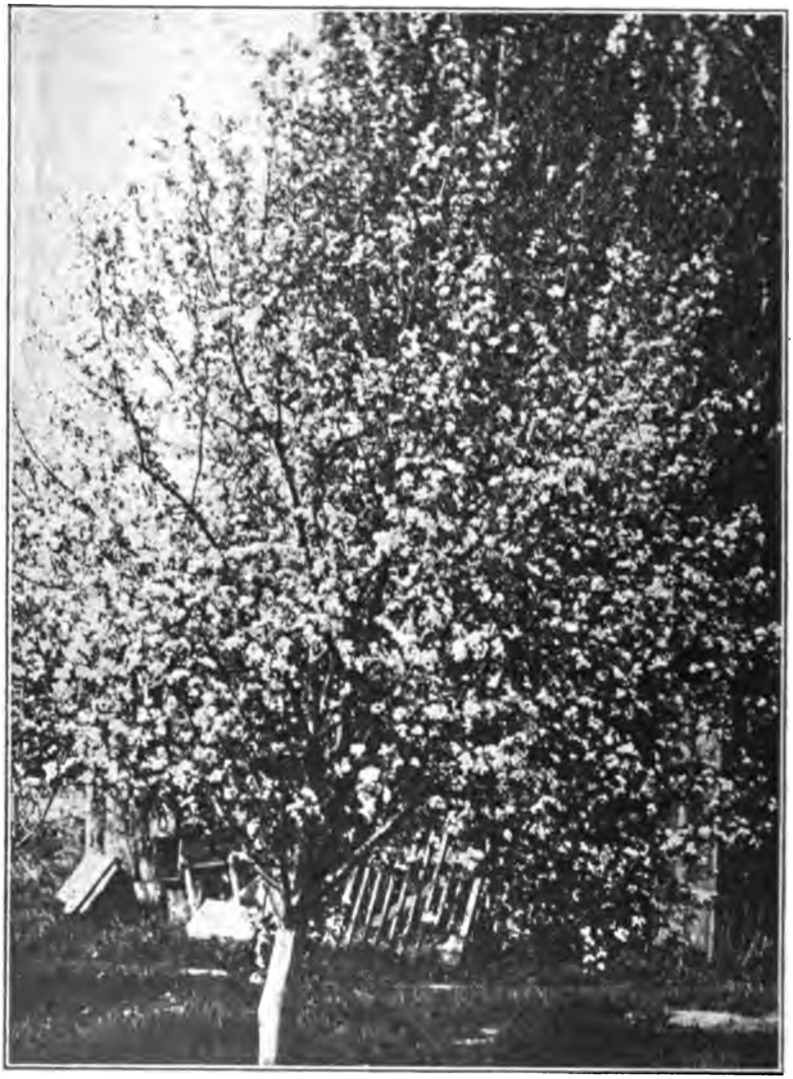
The Blue Jay is given credit for many traits and actions which have never come under our own observation, but one thing we are certain of, which is rarely mentioned in bird books and which almost requires a personal experience to be believed, and that is, that the Blue Jay has a very sweet song. In this case, seeing is believing, for one has to be very close to the bird in order to hear the low notes. It has been our privilege to hear this song on three different occasions, but the only description we have ever read of it is given by Dr. Hatch in his "Birds of Minnesota," in the following enthusiastic language: "The notes which fell in showers like dewdrops, almost inaudible, were among the dearest, most delicate, sweet and melodious that ever found their way to human ear. I was in an ecstacy of wonder and surprise, and only sighed in silence that every bird-lover could not share my delight. I forgave him everything I had ever seen, heard or surmised against him, and have never since harbored any but the kindest feelings towards him."

HORTICULTURE AND FORESTRY AT ST. JOHN'S UNIVERSITY, COLLEGEVILLE, MINNESOTA.

PROF. SAMUEL B. GREEN, ST. ANTHONY PARK.

For some years past I have heard occasionally favorable reports as to agricultural work that is being done by the fathers at St. John's University, in Collegeville, and I recently had the pleasure of spending a day there and looking over the very interesting work in agriculture, which is due largely to the efforts of Father John B. Katzner, and the forestry work, started by Father Adrian Schmitz. This college was established by the order of the St. Benedictine. It was established at St. Cloud in 1857 and was located on its present site in 1866. The location is ideal in many ways, it being on a rather high elevation overlooking a wide extent of picturesque country. Close to the buildings is located St. John's Lake, a very picturesque body of water with steep shores well covered with trees nearly to the water's edge. The improvements here must have cost in the vicinity of half a million dollars. The buildings are simple but well made and of good appearance. And it is plain, too, that the authorities in charge of this institution appreciate the beautiful in nature from the delightful location which they selected for it, and also from the way in which they keep their grounds beautifully decorated with a good collection of ornamental plants. The strong feature here is the school, which is attended by about 250 boys each winter.

On looking through the orchard I noticed a Red Astrachan that was doing fairly well. The tree was twelve years old and in good condition, having just borne a crop of, perhaps, a bushel of apples. This variety was in much better condition here than, perhaps, any of the Wealthy. Hibernal and similar varieties were loaded with fruit and seemed to be as much at home here as the maple trees



Briar Sweet crab tree in blossom, at St. John's University, Collegeville.

with which the ground was formerly covered. The Duchess was also doing well. The Peerless had some fruit but did not appear as vigorous as I had expected. Brier Sweet crab had rusted some, but it was still loaded with fruit, which was, however, somewhat spotted. Several trees of Wolf River were doing well and appeared to be perfectly at home. They were twelve years old and were large spreading trees. Some of them were capable of bearing a barrel of apples each. They were well loaded with fruit.

Shield's crab was bearing heavily, and the tree appeared to be perfect. This is one of Father John's favorite crabs for planting. General Grant crab is hardy, productive and one of the best for general farm use, although not attractive in color. Lyman's Prolific has poor foliage, and the fruit was badly scabbed. Fabel's summer apple, received from Charles Leudloff, was bearing heavily and is in season in August, but as it ripens at about the same time that the Duchess is at its best it is of little general value. Father John is an enthusiastic horticulturist, and he makes it a point to get scions from any tree that may seem to be doing well and frequently labels them with the name of the party from whom they are received. A large number of varieties have been collected in this way, some of which are standard sorts and some of unusual kinds. Whitney No. 20 is doing well here. Wealthy is weak in the crotches. The trees bear heavily, but soon exhaust themselves.

An orchard of a large number of kinds of plums is doing well here, and even some of those of the domestic class have a little nice fruit, although they do not promise to be very durable. The Yellow Gold plum, received from Charles Leudloff, is a favorite.

The plantation of forest trees consists of about ten acres altogether. The trees were raised by Father Adrian Schmitz, who was formerly a member of the faculty here. He imported seed from Austria and raised the seedlings. Many of the trees from this planting are now eight or ten feet high. They are mostly Scotch pine, but considerable Austrian and white pine have been planted, and similar lots of bull pine, red cedar and arbor vitæ are doing well. The original timber in this section was maple, basswood, elm and the trees ordinarily associated with them. These two fathers in their forestry and horticultural work have built for themselves enduring monuments and incidentally have done a most excellent work for experimental horticulture and forestry in Minnesota. In this place I found the Lombardy poplar doing very well and used with good effect along the borders of some narrow drives and paths. I have seldom seen it used so effectively, although they have planted altogether too much of it and in portions of the grounds there is an unpleasant sameness due to the use of too much of this peculiar shaped tree.

Having some considerable time to spare after looking over the grounds, I had the pleasure of being shown through the buildings. I noted nice classrooms for the different subjects and a large assembly hall with a stage arranged with scenery for the amusement of the students. A most excellent gymnasium well equipped with apparatus, handball courts and bowling alleys is found in a separate

European larch, at St. John's University, Collegeville.

building, and gives a good chance for the young students to work off their superfluous energy. Outside are tennis courts and croquet grounds. The farm is so rough and rolling that much of it must continue to remain in timber. There is an excellent barn and carriage house and good buildings for chickens and hogs. I learned that they milked thirty-six cows, and often had as many as 150 hogs and 1,000 or more chickens. They have their own meat house and meat curing rooms, electric lighting and heating plant, and large carpenter, blacksmith and general repair shop. The laundry work is also done here in two large buildings on the shores of the lake. On one portion of the grounds a large number of fine, cool springs gush forth, and these have been utilized by building several trout ponds for the purpose of raising fish. This year about 12,000 eggs were obtained, but when almost ready to hatch they were destroyed by a fungus, much to the disappointment of Father Hillary, who is in charge of this work and who expects better results the coming year.

Father John takes great pride in his horticultural work. For nearly forty years he has taught music in the college here, but on account of his poor health he has been relieved from teaching and finds much pleasure in his horticultural work. In speaking of the orchard, I should have mentioned his nursery, which is full of interesting things. In it he has a large number of varieties that he has raised from seed. He has interesting pear seedlings from seed which he obtained from Europe, and has a nice lot of seedlings, some of which are at present doing well. He also has some plants of the European sloe. His evergreen seed sown last spring has done poorly, due perhaps to the fact that we had so much cold weather in the spring, but his seedlings of 1904 were a good stand.

The fathers at this school have not yet seen their way clear to develop instruction in agricultural branches. I am inclined to think, however, that something of this sort would work very much to their advantage and to the benefit of the people of the state, and that it is something they could easily add to their present facilities.

Among the ornamental plants doing well here were hardy hydrangeas, buffalo berry, Russian olive, Ribe's alpinum and the usual common shrubbery generally recommended in the lists of our society.

In the middle ages the monks of this and similar orders did much for learning and for agriculture, and I was reminded of the good work which their predecessors did by my visit here.

ANOTHER METHOD OF THINNING—Practiced this past season, which was unquestionably profitable, was on Wealthy apples. I went over the trees and picked the largest and highest colored ones and put them on the market when beginning to color. It was early, apples were scarce, and I realized sixty cents per bushel. Each week I endeavored to pick over the trees, and at the end of four weeks, the trees were seemingly as full as ever. By following this method, one can get a great many apples on the market before it becomes gutted and the price drops, and at the same time keep the trees from breaking down.

FERTILIZERS FOR HORTICULTURAL PURPOSES.

PROF. HARRY SNYDER, ST. ANTHONY PARK.

In some localities a good quality of stable manure is difficult to obtain for horticultural purposes. When stable manure cannot be obtained in liberal amounts, what is to be done? Supplement the stable manure with commercial fertilizers? This is done in Eastern and Southern states, and when commercial fertilizers are intelligently used they often give excellent results.

As yet commercial fertilizers have not been used extensively in Minnesota, and without the necessary experimental data it is difficult to say what their true value would be in Minnesota horticulture. In their absence only a few general suggestions based upon the results of experiences in other states are offered.

Perfect nutrition of plants is necessary in order to secure the largest yield and best quality of product. A half starved plant, like a half starved animal, is always working at a disadvantage. There is no question but what better results would be secured in horticulture if more attention were given to fertilizers. There is a large amount of reserve plant food in many of our soils, and it requires only a small additional amount to supplement that which is already in the soil but too frequently in an inactive form.

I do not advise the use of commercial fertilizers for general farming purposes on Western soils, but I do believe that they can often be advantageously used on horticultural crops, where a large amount of labor is expended on a small area, and be found beneficial and economical. A commercial fertilizer cannot take the place of tillage. Good, clean, thorough cultivation of the soil is just as necessary with commercial fertilizers as when farm manures are used. At first it is better to use a complete fertilizer—one containing nitrogen, phosphoric acid and potash—until the special fertilizer needed is found by trial. A complete fertilizer is more liable to produce a balanced growth than is just one ingredient of plant food. Plants like animals do best on a balanced ration. A commercial fertilizer should not be used in excessive amounts; a dressing of two to four hundred pounds per acre will be sufficient for ordinary purposes. A fertilizer of good quality, one containing 4 per cent of nitrogen, 8 per cent of phosphoric acid and 10 per cent of potash costs about $38.00 per ton, making an application of two hundred pounds to the acre cost $3.80 for materials. The raw materials for such a fertilizer cost about $31.00.

A commercial fertilizer can be applied as a top dressing or scattered in drills near to but not in contact with the seed. The best conditions exist when the fertilizer is applied a few days in advance of seeding.

There are a great many different kinds of fertilizers, made from a variety of materials: as dried blood, nitrate of soda, sulfate of ammonia and seed residues containing nitrogen; treated bones and tankage, containing nitrogen and phosphoric acid; dissolved phosphate rock, containing phosphoric acid; and kainite, and muriate and sulfate of potash, containing potash. By combining these different materials a great variety of fertilizers can be made.

In buying a fertilizer, the horticulturist should insist upon knowing its composition, otherwise he will have no means of knowing its probable value. For general garden purposes there should be a liberal supply of plant food. Well composted farm manure can advantageously be reinforced with commercial fertilizers, as a liberal use of manures insures not only maximum yields but crops of the best quality.

Voorhees recommends as a general garden fertilizer one containing: Nitrogen, 4.00 per cent; phosphoric acid, 8.00 per cent; potash, 10.00 per cent. To meet the requirements of special crops, as spinach and cabbage, an additional dressing of nitrate of soda may be used.

The maturity of a crop can be influenced by fertilizers—an excess of nitrate of soda, particularly during a wet season, causes prolonged growth and retards maturity. A good supply of phosphoric acid and a medium supply of nitrogen generally hastens maturity, particularly if the water supply is a little scant and the growing season is favorable. An unbalanced growth is caused in some cases by an over-abundant supply of one element and a scant supply of others. For example, in a black loam soil of limestone origin containing an abundance of nitrogen and heavily manured there will frequently be an excess of available nitrogen in proportion to the available mineral food, because the conditions are unusually favorable for nitrification. The plants then produce a good growth of leaves healthy in appearance, but fail to fruit well. Such cases are presumably due to a lack of available phosphoric acid. Hardiness also, it is believed, can be increased by a judicious use of fertilizers.

Asparagus is a crop which responds to liberal manuring. Frequently the manures are applied too late. Asparagus preferably should be fertilized soon after harvesting, so as to encourage new growth and storage of reserve building materials in the roots for next year's crop. A liberal manuring with both commercial fertilizers and farm manures is desirable in the case of asparagus.

For early maturing garden crops, a fair but not excessive amount of nitrogen should be applied; for such purposes a more liberal supply of phosphates will be found advantageous. Some garden crops, as cucumbers, pumpkins and squashes, thrive best when their food is supplied in organic forms, as the humate compounds derived from farm manures. A continual supply of available plant food is thus furnished to the growing crop. Onions are benefited by a generous dressing of soluble nitrogen. Celery should also be well supplied with soluble nitrogen combined with soluble forms of mineral food. Tomatoes require general fertilizing. For early maturity, nitrogen, as nitrate of soda, is beneficial, but an excess should be avoided; for late maturity, farm manures and commercial fertilizers containing less nitrogen can be used.

In the manuring of fruit trees, it should be the object first to produce thrifty trees, as subsequent fertilizing to produce fruit will not give satisfactory results with poorly grown and partially developed trees. In order to promote growth, a liberal supply of a complete fertilizer should be used. When an orchard is in full bearing, there is as heavy a draft upon the soil as when a wheat crop is grown. The quality of the fruit is often adversely affected by a scant supply of plant food. A quick acting fertilizer containing kainit, nitrate of soda and dissolved phosphate rock should be used in the spring, followed if necessary by a light dressing of some manure which yields up its fertility more slowly. Stone fruits are benefited by the addition of lime to the fertilizer.

House plants also respond to liberal applications of fertilizers. Some of the odorless commercial fertilizers are very suitable for this purpose, and a light application two or three times a month will be found advantageous.

In case only a small amount is needed, purchase of your druggist and mix thoroughly the following ingredients: nitrate of soda 8 oz.; sulfate of potash, 6 oz.; lime phosphate (mono calcium phosphate), 18 oz. If the ingredients are pure, the mixture will practically all dissolve in water and can be used in small amount occasionally. (Two or three times a month at the rate of a half teaspoonful dissolved in about a quart of water.) Such a fertilizer will be found more hygienic and suitable for use in a dwelling than ordinary manure.

As all true horticulturists believe in good lawns and lawns especially need fertilizers, a few suggestions in regard to lawn fertilizers are offered: In the preparation of a lawn, a mixture of six parts of bone ash, two parts of muriate of potash and one part of nitrate of soda can be applied at the rate of five to seven pounds per square rod prior to seeding. A good lawn should have a subsoil that is fairly retentive of moisture, one containing ten to fifteen per cent of clay or a large amount of fine silt. Too much potash and lime encourage the exclusive growth of clover and the crowding out of grasses. During the season. two or three applications can be made of a commercial fertilizer containing about three per cent of nitrogen, ten per cent of phosphoric acid and three per cent of potash, at the rate of about one pound per square rod. When part of the nitrogen is in the form of nitrates and part as ammonium salts, better results are secured than when the nitrogen is all in one form. It is also advisable to supply the phosphoric acid in more than one form. An even application of the fertilizer is quite necessary, otherwise the growth is "patchy." Hardwood ashes evenly spread at the rate of one to two pounds per square rod can also be used advantageously as a lawn fertilizer, and when they are used they should be reinforced with nitrate of soda.

The application and judicious use of commercial fertilizers is both an art and a science, the underlying principles of which are somewhat similar in nature to those of the feeding of animals. A good horticulturist always likes to see a well nourished plant or tree.

Mr. Yahnke: Would those fertilizers used on strawberries have any effect on the brightness of the color?

Prof. Snyder: We probably would not be able to use any one fertilizer that would make a brighter color. I think the high color is an indication of healthy growth and development, and when a plant receives perfect culture the best color in the fruit is developed.

Mr. Underwood: Is there any danger of overdoing the matter of fertilizing by manure, stable manure?

Prof. Snyder: The only danger would be if you had a soil with a good deal of limestone you would probably have a rank growth caused from an excess of nitrogen, and it would not enable the plant to cure, as you might say, get ready to go into winter quarters. I think that would depend largely upon the soil.

Mr. Underwood: What would be the effect on black loam with clay subsoil or on sandy soil?

Prof. Snyder: On sandy soil there would be less danger of this because there would not be the large amount of reserve plant food which would push the plant. In black loam soil we are most likely to find the conditions I have described. What experience I have had with fertilizers on black soil would be in favor of using farm manures.

Mr. Underwood: I can say that I have no special method, but I have made a practice of putting on stable manure every fall and winter, and I only ask for information as to whether there is any liability of overdoing the matter.

Prof. Snyder: A medium application each year is preferable to a heavy application every third year. An application every year would not be so liable to cause injury.

Mr. Yahnke: I have tried this experiment, and I know it is true, just as he says.

NEW YORK FORESTRY MATTERS.

PROF. S. B. GREEN, ST. ANTHONY PARK.

The state of New York has a state forest commission that is in charge of the state forests, their protection and renewal, and the care and protection of the game and fish. It is known as the "New York State Fish and Game Commission." Formerly, it was composed of several members, but a recent act of the legislature has changed this so that now there is but one commissioner.

I recently had the pleasure of visiting the state forests near Saranac Lakes, in the Adirondacks, in company with General C. C. Andrews, chief forest fire warden of Minnesota; Colonel William F. Fox, superintendent of the New York forests, and Professor Knechtel, the forester of the New York Game and Fish Commission.

The state of New York has for a number of years followed the practice of buying up forest lands in the Adirondacks and Catskills with the object of creating immense parks for the use of the citizens of the state. It is paying as high as seven and eight dollars per acre for much of this land. Altogether the state now holds about a million and a half acres in these parks and in sundry detached pieces elsewhere. Previous to the last New York state constitutional convention there had been so much irregular work in connection with the state forests that there was inserted in the constitution at that time a clause which prohibits the sale or lease for revenue of any portion of the lands held by the state. This handicaps the work of the forest, game and fish commission, since they could lease a large number of camp sites that would produce them a revenue of forty or fifty thousand dollars per year, and they have some forest lands that need improvement cuttings in order to bring them into the best condition. An effort is now being made to secure an amendment to the constitution permitting the leasing of camp sites and improvement cuttings, so that the forests may produce some revenue.

When New York began to acquire land for forest reserves, it found great opposition from local authorities, as they were afraid of having the land tied up in such a way that it would not bring in taxes for local improvements. The matter has now been settled by the state paying taxes for local improvements to the same amount as private individuals.

The state forests are very popular with the guides and citizens generally. They are open to all citizens of the state alike. There is a great deal of opposition here to large private holdings, which formerly were enclosed with fences and travel over them forbidden for any purpose. The owners of these ranges have now generally decided it is best to allow the public to pass freely over their reserves, but the public is not allowed to kill game in these reserves. "Private Reserves" must be posted every forty rods along their boundaries with a notice of a certain size and form.

Immense damage has been done to the Adirondack forests by fire, and the marks of these fires are now seen along all the railroads. In 1903, which was a very dry year, more damage was done than in any known previous year. Although there was no appropriation at that time for the purpose of suppressing forest fires, the governor took the responsibility of authorizing the expenditure of nearly $150,000 for fighting fires, and at one time as many as 7,000 men were employed in this work. The sources of these fires are the railroads. On one short branch road, however, which by the terms of its franchise must use oil as fuel, there were no fires in 1903, nor any injury from this cause since the road was constructed.

An effort is being made to plant up the abandoned farms that have been acquired by the state, and the results are thus far very promising. Perhaps 5,000 acres altogether have been planted, and we looked these over with much interest. We found that the best results in many places was with white pine. Scotch pine also gave good results and occasionally was doing better than the white pine. They have bought a large number of evergreen seedlings in this country and in Germany, and have been quite successful with them. The Norway pine is a popular tree there, but they find it difficult to obtain the seed. Their seedling nursery at Saranac Inn is in very nice condition and has the advantage of being in full view from the car windows. As yet, only a good beginning has been made here in forestry, but the work is on a good footing, and I think is destined to be very successful.

At Saranac Lake village there is a large sanitarium for patients suffering with tuberculosis, and there are also many private patients in this neighborhood. I noticed in passing that the patients of the large sanitarium recently erected seemed to be grouped in a camp of tents near by, and it seemed evident that it was the practice there to have the patients in tents during the summer months and in the winter in the large sanitarium building.

BISULPHIDE OF CARBON FOR ANTS.—Where ants infest lawns, punch holes about a foot deep with a stick at three or four points near the center of the nest; pour into each about an ounce of bisulphide of carbon and close the opening with the foot. The vapor will get into and follow the galleries and kill the ants. A second treatment will rarely be necessary.

FOREST AS AFFECTING THE RAINFALL.

CHAS. CHRISTADORO, MINNESOTA.

Mr. Chairman, Ladies and Gentlemen: There is one thing that I would suggest to this association. I would like to see some one deputize, I don't know whom to suggest, to write an exhaustive paper on the question of the influence upon the flowage and supply of our rivers and headwaters in connection with the growing, or the reforestation, of pine timber generally. The question is, will a river flow, as it has always flown, just as much water—whether there is just as great a reservoir of waters at the headwaters of that river whether the timber is allowed to stand or whether it is cut out. I have talked with various people and had them tell me it made no difference, or very little difference, with the headwaters of a river whether timber grew there or whether it was cut off, that it made no difference whatever upon the storage capacity of the headwaters of that river. I have taken exception to that statement as strongly as I could, but I would like to see that subject treated by some one who would be considered an authority. I would not care to start in on it now, because I might perhaps hold you here for a considerable time. There are many reasons I could detail why that is a most vital and important question affecting 30,000,000 people in the Mississippi Valley. It is a matter that sometimes, it seems to me, is entirely lost sight of. It is a fact today that four governors, Governor La Follette, of Wisconsin; Gov. Yates, of Illinois; Gov. Cummins, of Iowa; and Gov. Van Sant, of Minnesota, have gotten their heads together and asked for an appropriation to deepen the channel of the Mississippi river, with the Panama canal looming up in the distance. We have four feet at mean low depth, and we want six, and if we get six and the Panama canal is finished it will mean a great deal for the Mississippi river and the Mississippi Valley. While we are approaching congress and asking for $25,000,000 or $50,000,000 appropriation in the harbor bill, they are cutting out millions of acres of timber at the headwaters of the river, with the exception of five per cent that is left, and every man in the Mississippi Valley is interested in that proposition. Yet I don't think anybody is paying any attention to it. Now if you can show me any sense in cutting out the timber at the headwaters of the river, and affecting the flow of the river unquestionably, on one hand, and on the other appealing to congress for $50,000,000 or $100,000,000 to deepen that river, I want to know where the logic or common sense is in connection with that. There is a remedy for it, and it is an historic one; one man cannot do it, but I think it is a matter of such great interest as to set the people to thinking who are interested in the future of the Mississippi river, and thinking very hard too. I thank you. (Applause.)

OREGON APPLES AND THEIR PACKING.

A DISCUSSION.

Mr. A. J. Philips (Wis.): I want to know your best apple and what price you get for it?

Mr. Carbine (Oregon.): The Spitzenberg and the Newcomb (?). They are sold in New York for $2.50, $2.25 and others down to $2.00 per bushel box.

The President: What about the box?

Mr. Carbine: The size of the box is 10x11x22. It holds more than an exact bushel, and we think it makes a very neat box. It seems to take pretty well in the east.

Mr. C. S. Harrison (Neb.): Do you market your apples in New York state?

Mr. Carbine: Yes, in New York.

Mr. Harrison: While they are rotting under the trees there?

Mr. Carbine: Yes, I know that, but nearly the whole product of the Hood River Valley is taken there and sold.

Mr. Yahnke: Are you growing the Ben Davis?

Mr. Carbine: Yes; the Ben Davis is bringing about seventy-five cents a box.

The President: What is the advantage over the barrel?

Mr. Carbine: I have never had any experience with barrels. The dealers claim there is not so good a chance to make a stovepipe pack. Our apples are all packed in layers. Some face the boxes. They are packed in layers throughout and most of the shippers use an even size apple so as to make the appearance uniform, and that is one thing that takes in the market.

Mr. C. S. Harrison: Are they packed under pressure?

Mr. Carbine: Yes, they are subjected to pressure? Of course, only the ends receive the pressure.

The Secretary. Is there any pressure brought on the top of the boxes

Mr. Cardine: No, there is no pressure on the top or bottom. It is thin lumber, sufficiently thin to conform to the pressure.

Mr. C. C. Hunter: Are they graded?

Mr. Carbine: They are all graded into different grades.

Mr. Hunter: Is the fruit papered?

Mr. Carbine: That depends on the market. For New York each apple is wrapped, and for other markets we simply line the box.

The Secretary: Is the Wealthy grown in your country?

Mr. Carbine: Not extensively. They regard it as an early apple. We hardly raise enough to be worth mentioning. The main apple grown is the Spitzenberg, which bring a fancy price.

Mr. Elliot: How about the Black Ben Davis?

Mr. Carbine: It is being experimented with to some extent. It is only of recent origin, and it is not being planted very extensively as yet. We are trying them on a small scale first.

Secretary's Corner.

WHY THIS NUMBER OF THE HORTICULTURIST IS LATE.—The printer's strike, now in full swing in Minneapolis, is solely and alone the cause of the delay in the issuance of this number and is likely, the way matters appear, to cause a similar delay in the issuance of the December number. The secretary has done everything possible to bring the magazine out on time but with deplorable result. When the time comes when everybody lives in peace and harmony, is willing to "live and let live," we may get along without these disagreeable affairs, and then the Minnesota Horticulturist should get there in season.

A REMARKABLY PROLIFIC APPLE TREE.-Mr. R. R. Livingston, of Fairmont, in this state, reports a Rollin's Pippin apple tree bearing this year twenty-five bushels of merchantable fruit. Mr. Livingston lives in a region that is now producing a large amount of fine apples, the Wealthy trees in that section being reported as especially productive and healthy. The variety referred to, Rollin' Pippin, is described by the late John S. Harris as "size, four to five," making it about 2¼ to 2¾ inches in diameter; "flesh yellow, fine grain and juicy, flavor a pleasant acid. This tree originated with I. W. Rollins, of Viola, Minn. It is a symmetrical grower, quite hardy and a fair fruiter, but rather tardy in coming into bearing." This agrees with Mr. Livingston's statement that the tree did not bear until it was fourteen years old. Since that time it has borne well.

FORESTRY AT THE FEDERATION OF WOMEN'S CLUBS.—At the annual meeting of the Federation of Women's Clubs of Minnesota, held in Minneapolis, Oct. 19th, Mrs. Lydia Phillips Williams, secretary of the Minnesota Forestry Association, presented with special earnestness the necessity for action to prevent the reservation and public park created under the Morris Act at Cass Lake from being abandoned as the result of the efforts of a few people who are interested in getting possession of the valuable timber on these lands and in speculating with the lands themselves. Mrs. Williams embellished her talk with three striking cartoons and in a very earnest way urged united action in the matter. Mrs. J. B. Hudson, of Lake City, talked very pointedly along the same lines, giving the results of a personal visit to the locality the past summer and showing from her own observation the falsity of many of the statements made by those who wish to see the reservation abandoned. Much good should come from these earnest talks.

REDUCED RAILWAY RATES TO MINNEAPOLIS.—The annual meeting of this society furnishes an excellent opportunity for any one wishing to visit the Twin Cities from any part of the state to do so at that time, there being a reduced railway rate to one and one-third fare for the round trip. Members and their friends intending to visit the cities between now and the holidays should plan o come the first week in December when the Horticultural Society holds its meeting. Tickets will be good purchased as early as December 1st for the coming trip, and for return they will be good as late as December 12th. Such tickets would have to be presented at the place of meeting of the Horticultural Society at the First Unitarian church, corner of Eighth St. and Mary place, on Friday, December 8th, to be properly countersigned by the joint agent. No other day than this will answer the purpose. This special rate, if generally known, ought to bring many people to Minneapolis and St. Paul at that time.

SCIONS FROM TREES THAT FRUIT WELL.—This is a matter of greater importance than many of our readers think. A fruit grower in the office lately spoke of two Hyslop crab trees that are uniformly good bearers and free from blight, and the secretary urged upon him the importance of increasing his orchard, if he purposes to plant more of the Hyslop, by grafting young trees with scions from these fine bearing trees. It is a well established fact, and practically undisputed, that scions from such trees are much more likely to produce good fruiting trees than those taken at random in a hap-hazard way from the nursery row.

USE THE BADGE BOOK.—For several years now a badge book has been prepared for use at the annual meeting, containing the names of all who notify the secretary of their intention to be present. Each name is numbered to correspond with a number on the badge to be given each member. Heretofore about one-half of these badges and badge books have been applied for and used. There should be a more general use of them for the benefit in part of the large number of new members and comparative strangers who attend our meetings. Let every person to be present notify the secretary and at the first opportunity after reaching the meeting apply to that officer for the badge book and accompanying badge and put it on.

THE ANNUAL MEETING BEGINS TUESDAY FORENOON, DEC. 5TH.—The first item on the program after the preliminary exercises is the president's address. President Wedge has some important matters to lay before the society and will take that opportunity to do so. He should be greeted with a full attendance of all the members who are to be present at the meeting—and there should be a very large number indeed. The meeting opens at 9:45 which is late enough to allow for the arrival of passengers from almost any of the trains in the state that morning—come directly to the meeting instead of going to the hotel first, if necessary, to get there on time. If you can't get to the meeting in time by starting that morning, come the night before and be with us from the very opening of the session. Give the meeting a good send off, and the interest of the meeting will be maintained throughout to the very close.

A SESSION FOR SEEDLINGS,—The Friday afternoon session of the annual meeting is to be given up to the consideration of seedling fruits and how to grow them to get results. In the judgment of many of the leading members this is the most important horticultural subject under consideration in our state at the present time. We need and are confidently looking for better and later keeping apples, and larger and better flavored plums, and faith is strong that our hopes in this direction will be fully realized at no distant day. Our readers should note carefully the papers to be presented at the session referred to, most of them by leading authorities on the subject. If you attend the annual meeting,—and how can you stay away when you note the multitude of interesting subjects to be considered?—be sure and plan to remain until the close of the last session and get the cream of the meeting.

SPRAYING PLUM TREES FOR GREEN APHIS.—R. E. Hynson, of Mankato, a successful plum grower, gives his method as follows: "I spray my plums from two to three times for green aphis. I use kerosene emulsion, and with good results. So many people don't do it *just right*. I take one and one-half bars of soap, the *best kind of soap*, put in wash boiler, cut up fine, with enough water to dissolve it. Then I put one quart of kerosene in. Then fill boiler full of water and heat up together as warm as I can hold my hand in. Then use right away."

SPECIAL PREMIUM OFFERS FOR THE ANNUAL MEETING.—Quite a number of valuable special premium offers are to be made by some of the nurserymen of the state in connection with the fruit exhibit at the coming annual meeting of the society. Those that have been received at the time of writing this, are: two of fifty three-year old apple trees each, from the Jewell Nursery Co., one for the best early winter seedling apple and the other for the best late winter seedling apple. Two premium offers have been received from the Clinton Falls Nursery Co., at Owatonna, each for $15.00 worth of nursery stock, to be selected by the successful exhibiter. One of these prizes is for the best peck of Wealthy and the other for the best peck of Pattens' Greening. A special premium of twenty-five three-year old trees is also offered by the Andrews Nursery Co., for the best peck of Northwestern Greenings. This list will undoubtedly be added to before the program goes to press

A NATIONAL APPLE DAY.—Tuesday, October 24th, is being observed, we are informed, by a number of state horticultural societies, fruit growers' associations and kindred organizations as a "national apple day," with the thought that a union of effort in this way will assist in lifting the apple growing industry to a higher and more successful plane. The day is being variously observed by a public display of fruit, by papers, public talks and offers of prizes for exhibits. Minnesota has a pretty successful "apple day" at the time of the annual meeting of the horticultural society, which is doing much to call the attention of the public to the success of apple culture in Minnesota. Perhaps it might be well for the society also to notice this effort to establish a "national apple day" and participate in it.

AN ACKNOWLEDGMENT NEGLECTED.—Credit should have been given in the October number to Prof. F. L Washburn, State Entomologist, for the use of an original cut of the Cottony Maple Scale appearing on page 367 in connection with a short article describing this insect, written by Prof. S. B. Green. Any who are interested to know more about this pest should consult the Eighth Annual Report of the State Entomologist, which can be had upon application to him at St. Anthony Park.

THE GOSPEL OF NEW FRUITS IN MINNESOTA.—A letter from Mr. Luther Burbank, the well known creator of new fruits and flowers, written from his home in Santa Rosa, Calif., under date of September 25th, says: "Minnesota will, in time, by growing *seedling* fruits have as good plums, apples, and berries as are now to be found in any other state; and you have, of course *just the climate for testing*. It cannot be done elsewhere." Mr. Burbank here has sounded the keynote of success for the Minnesota pomologist. To reach this success you have to just "keep everlastingly at it" until the desired results are obtained.

POSTPONED MEETING OF BEEKEEPERS' ASSOCIATION.—The Minnesota Beekeepers' Association will not meet this year conjointly with the Horticultural Society on account of the National Beekeepers' Association meeting in Chicago, which takes place at the same date as the annual meeting of our society. The beekeepers have, on account of this, decided to postpone their meeting or omit it altogether, as they may later decide.

A PROFITABLE YIELD OF BLACKBERRIES.—W. E. Fryer, of Mantorville, writes that "six rows of blackberries eighteen rods long, and four of them planted only the year before, produced last year 1450 quarts. This season the same rows produced 1800 quarts." Who has done better? Mr. Fryer does not state the variety.

SETH H. KENNEY AND DUCHESS APPLE TREE TOP-WORKED WITH MALINDA.

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TRIMMING THE ORCHARD.

SETH H. KENNEY, WATERVILLE.

I began trimming some Wealthy apple trees soon after the hard winter of 1884 and 1885. I have those trees in good condition to this day. One of these trees has borne three barrels in a single year.

Since that trimming, twenty years ago, I have cut only the small sprouts each year. The limbs were far enough apart to let the sunshine through the tree, and the color, size and flavor is increased.

Since watching the good effect of this early trimming I have followed it up on all my trees except Transcendent. Last spring I went over all my Wealthy trees the last week in May and the first week in June. At the time it looked as if I had trimmed them too much, and last fall gave me a less number of apples, but the size was very large, and they brought eighty cents per bushel by the load. I am sure the severe trimming saved thinning the fruit and made it larger and more attractive. There were 300 bushels that averaged very large, and it reduced the cost of harvesting the apples, as the fruit was so large the work was much more rapid in picking.

My observations lead me to believe that a tree well trimmed leaves more sap to mature fruit buds for the next season's crop and that the tree will be much more liable to bear each year. I do not think, as a rule, we trim our apple trees enough to get the best results. I have in mind some large apple trees with very large tops that I never have seen bear a good crop of fruit, and my reasons for this are that so much top and leaves take up so much of the sap that there is not enough to ripen up the fruit buds.

I have found that the cuts where the limbs were taken off the last of May and first week in June heal over better than at any other time.

As far as my observation extends, not one-fifth of the apple trees receive sufficient pruning to obtain best results and the grade of our apples can be raised very much by pruning; very young trees can be shaped so that scarcely any limbs will need to be cut; and if trees can be regulated by judicious pruning so as to bear every year they would in a series of years be of more profit than a large crop every other year.

Mr. Penning: Do you wax the limbs?

Mr. Kenney: No, I don't. I looked them over carefully this fall, and I noticed at the outer edge they were healed over nicely.

Mr. Murray: How large limbs do you cut?

Mr. Kenney: I look over the top, and if I see a place the sun cannot get in I take out a limb.

Mr. Murray: Without regard to the size of the limb?

Mr. Kenney: Yes, if they are too thick. I think an apple that is not colored up well is one that has not had enough sunshine.

Mr. Murray: Have you ever had any rotting?

Mr. Kenney: I have not. I have trees I trimmed twenty years ago, and I have not cut anything off since. Three years ago on the 30th day of June we had a severe windstorm that blew down a great many trees. I thought they had too much top and got too much wind. I did not expect to get any apples this year, but apples were much larger, and it did not cost me so much to harvest them. I could not get a nicer lot of fruit, and the merchants who bought them told me they could use as many as I could furnish them.

Mr. Taylor: You told us last year about growing Malinda on Duchess stock.

Mr. Kenney: I think that is going to be a great success. I have thirty Duchess trees top-worked last spring, top-worked with Malinda, and apples growing on the Malinda trees were not half as large as Malinda apples that grew on Duchess trees this year and some last year. I sent some to St. Louis, and Mr. Yahnke said he saw them, and he considered them the nicest he had ever seen. I expect to get a hundred bushels or more another season. The thermometer went down to twenty below zero, and there was not a bud killed on those Malinda trees. When I had to cut out limbs I cut out Duchess limbs. I thought it was better to have apples that would bring a dollar a bushel late in the winter than to have Duchess worth from twenty-five to fifty cents a bushel.

Mr. Stone: I always paint the stubs of the limbs where I cut them off. Is that a good plan?

Mr. Kenney: Yes, I think it is a good plan, but I have had no trouble with those Wealthy I trimmed twenty years ago.

Mr. Murray: We older horticulturists know that Peter Gideon was absolutely opposed to cutting off any limbs bigger than his little finger. My rule is to cut off the little limbs. I wish to give you my experience in another line. I had one of the most productive little orchards of wild plums I knew of anywhere, and the trees did not seem to fail to bear every year. I went to work and gave those trees a thorough pruning to put them in better shape, and I cut off limbs without regard to size, and I got those trees in good shape. That orchard was never worth anything afterward. I do not remember that it ever bore a good crop again.

Mr. E. A. Smith: This subject was all threshed out yesterday. Quite a number supported the theory to prune when the knife is sharp. As I said yesterday, pruning should be done at some time of the year when nature will assist in healing the wound more quickly than it would at other times. I believe June is the best month for pruning trees. I have noticed that large limbs begin to decay where they are not waxed or painted. The deduction is that limbs should be cut off before they become too large. Another gentleman spoke about maple trees being weakened in vitality when tapped. I come from Vermont where they have sugar orchards. and I found it was not necessary to bore into the tree two or three inches to get sap, but when the wound did heal over there was always a decayed spot, and the tree never got over it. Professor Hansen also spoke of the antiseptic treatment of the knife in surgery, and I wish he would tell us when we go from a diseased to a healthy tree with the same knife and do any pruning whether disease can be communicated. What solution should the knife be dipped in to make it antiseptic? I would like to know what he uses.

Prof. Hansen: We try to keep one saw or knife for diseased trees and another for healthy trees. In regard to disinfection, I think any solution of carbolic acid would do.

Mr. Yahnke: I do not believe the people generally understand what is meant by the term "when the knife is sharp." When your knife is sharp you can cut out little limbs that you can handle with the knife, and it will never hurt the tree. That is all right, and that ought to be done too.

THE POSSIBILITIES OF FLORICULTURE.

C. S. HARRISON, YORK, NEB.

Hunting for Gems.—If in "the gold mine in the front yard" there should be found a mine of precious gems, what zest would be given to research! Yet it is a fact that we are on the verge of the unknown. Behind a thin veil the good Father has much in store for us; we can fold the curtains aside, enter in and take possession of our own. We are millionaires if we only knew it and would just reach out and take our inheritance. A man finds a precious diamond like the Kohinoor or Mountain of Light or Star of the South, and his fortune is made.

Ancient rulers reveled in the possession of precious stones. When Persia was invaded by the Saracens, they captured a magnificent carpet which was one of the marvels of the world. It was 450 feet long and ninety feet wide, and had a border worked with precious stones to represent a garden of the most beautiful flowers. The leaves were formed of emeralds and other green colored gems, while the buds and blossoms were composed of opals, pearls, rubies, sapphires and other jewels of immense value. Along with this was a robe of state embroidered with the most costly stones. That wonderful carpet was an imitation of a flower garden. True, the fabric of woven gems would last the longest; yet there was only one of it, while a million of people can have carpets of bloom radiant with a thousand forms of loveliness, emitting their fragrance and unfolding their beauty.

There was the peacock throne of Delhi—a marvelous collection of jewels fashioned into the form of that resplendent bird. It was worth thirty millions of dollars—a magnificent bouquet of splendor. Yet today the quiet woman on intimate terms with earth and nature can have a collection of beauty with tints, pencilings and colorings which can vie in appearance with this masterpiece of human skill. Let some emperor have his great Mogul or Orloff diamond; a hundred thousand people can have their splendid Festiva maximus, their La Tulipes, their roses, columbines and dahlias. Men have gone mad over the discovery of precious stones. But there are gems of lustrous beauty in the floral world, gems which do not center all their value in a single object. I stood by the original Concord grape vine in that old historic town from which it takes its name, and said, "You grand old mother, you know not the trainloads after trainloads of luscious fruit and plants which have gone forth from your branches, adding millions to the nation's wealth." The costliest gem ever found in any age or clime would be only a cobblestone compared with that wealth and pleasure giving vine. Gideon discovered another jewel in the Wealthy apple. What a marvel! No gem ever discovered can have any comparison with it. Go to any of our western states, and you find fruit enough of this to load whole navies. Somewhere in the unknown are other fruits, hardy, luscious and prolific, which will yet add millions to the nation's wealth. No one can take out a patent on these discoveries. The gates are not locked. You can be an independent mine owner. And perhaps some quiet farmer may yet capture the prize for the apple for which the great northwest is waiting.

In floriculture what marvelous changes have been made! The single rose is the product of nature, the double rose is the product of nature and art. What crosses are all the while being made! One day in the east I rode on the cars with the noted Jackson Dawson, superintendent of the Arnold Arboretum. He was taking eight hybrid roses to the Massachusetts Horticultural Society. What improvements in lilacs, spireas and syringas! Some one crossed the delicate little Thunbergi with the Multiflora, and that gave the

Argenta, which blooms with the tulips, a snowdrift of white—the earliest of all. And it has such persistent foliage that in the autumn it is like a rich flower garden all by itself with its gorgeous colorings, thus making two attractive displays, one at each end of the season. Lilacs are all the while being produced from seed. Plant the choicest kinds with a rich diversity of bloom and foliage, and from the seed you will have some surprises of beauty.

ORIENTAL PERENNIAL POPPY.

How much has been achieved by the wizards of horticulture, who have opened new gates to let us look on the broad empires of possibility! And how much is being done along the lines of private research! Take the carnation. Only a few years ago it was but a humble flower, and now a glory fit to adorn the palaces of kings, and the limit of its development has not yet been reached. When Rosenfield gave the world his golden harvest and floral treasure, he discovered gems whose beauty, soon to be increased by millions, will gladden the eyes of thousands whose souls have been aching for the beautiful. Father Terry, of Iowa, has given us over 100 new and choice paeonies, and among them his Victor, which is victorious; and Excelsior, that excels; and Morning Star, with delicate rays radiating from a heart of gold. What a troop of loveliness to rise up and bless the old man as he goes toward the land of the setting sun. I visited him last summer on his seventy-eighth birthday. His creations seemed to rejuvenate him, and I found him planning for twenty-five years ahead. See how he has blessed the world by bringing cheer to so many homes! It is said he is a benefactor who makes two blades of grass grow in the place of one. What shall we say of the man who in the place of none shall clothe the brown earth with a splendor on which the soul can feast, who discovers gems which will increase to millions? There is altruism here. It is like an almoner handing out the richest gifts of Providence to a needy world. What I wish to do is to awaken a zeal so you can go out and possess these new fields. There is a charm in taking flowers already established and propagating them, thus clothing barrenness with beauty. But we have reached that point where the ordinary man or woman, boy or girl, can add to the treasures of the world, the delights of society.

A quiet woman in Indiana a few years ago planted some paeony seed. One plant, on my advice, she named General Lawton. It was sold for $100. It is a splendid flower. Another she named for her departed husband, and a leading florist paid her $150 for it. Another of her creations, Walter Morgan, has a charmingly fragrant blossom of pure gold. There is no overshadowing trust to interfere with this business, no law which forbids research along these lines. God sets up no signs with "No trespassing here." What wonder when I see these things that the fascination comes over me! I have broken the world's record by planting thirty-five pounds of the choicest paeony seeds the earth affords, and I confess I am willing to forego the pleasures and delights of heaven for a season to see the new forms of beauty which will spring up from those seeds. No two exactly alike, and among them there will be some which will be the joy of the florist and the delight of the home.

Note this fact: When flowers are first developed from the original type they have a tendency to revert back again. It probably took 1,000 tests to produce a double dahlia. Now the family is so well established that the progeny partake of the characteristics of the parent. A lady not long ago sowed some dahlia seeds, and was amazed to find a pure white, immense double flower which she named Surprise. Last spring I sowed a lot of seeds from the canna and was delighted to find many of very superior merit—much finer than many that have been on the market for years. I keep about fifty kinds of mixed columbines, and their product gives an almost endless permutation of beauty, and I note many vastly superior to any of the old sorts. There is this about the family: they use all the prismatic rays in making their garments.

Take the phloxes developed from our own wild prairie flowers. I know one American florist who has 250 named varieties. They have pushed ahead and branched out into so many charming varieties their mother would not know them. By the merest accident I have found the key to their improvement and have met with astonishing success. Among the imported ones there is the Crepiscule, with compact head and flowers as large as a silver dollar. I found that it impressed its size on all its neighbors, so that seeds from them produced splendid results. A florist visited them and laying a dollar on a single flower, said, "It will take just about a dollar and thirty-five cents to cover it." I secured twenty kinds of superior merit far ahead of many of the imported ones. Remember, these gems are not like the precious jewels that never multiply. You can increase them rapidly, and you can have a garden of delight all your own, and can have many things they could not have in the Persian jewel garden. And standing there, like a god, among your new creations, you can understand the petition, "Let the beauty of the Lord our God be upon us."

Prof. N. E. Hansen (S. D.): In illustration of the point that Mr. Harrison made: There is a minister in England who for ten years worked with poppies, and I read a very entertaining account of his work in one of the English horticultural magazines. The writer states that he used to get up at four o'clock in the morning to pull up the poppies that opened with a black center. The idea was to get the black out of the center of the poppy flower. He succeeded and named it after Shirley instead of after himself. Shirley poppies are famous, although thousands who plant poppies do not know that it was the work of a minister in England who used to get up at four o'clock in the morning to pull up the inferior plants. The earliest sweet pea we have in America is the work of a farmer's wife in Pennsylvania. For a number of years she saved the seed from the very earliest flower, and after some years of careful effort along this line the seedsmen got hold of it and got the entire stock and put out the earliest type of sweet pea, and from those have been developed still earlier varieties. But it can all be traced to the work of the farmer's wife in Pennsylvania. So some of the best work in Europe and America in flower and fruit culture has been done by amateurs. In visiting one of the largest flower seed firms in the world in 1894 I saw an eighty-acre farm of old-fashioned China asters, having been developed by selection until we have hundreds of different varieties. Many men were working there selecting the best plants for seed, tying a string around them so the seed would be saved, and it impressed itself upon my mind as a wonderful piece of work, and also that the field is too vast, and that some of the varieties that are promising in the west should be taken up by amateurs who can devote the care to the work that is necessary. The commercial man is too busy to follow up the matter; he has to stick to commercial things, and so it remains for amateurs to take it up and give the loving care to it that is necessary.

Mr. C. S. Harrison: The phloxes are coming more and more into favor; they are perfectly hardy, and they can be regulated so they will bloom from June to November. It is more easy to raise than the paeony, because you have to wait five or seven years for the paeony you grow from seed, while the phlox comes into bloom at once. Now you take the phlox and put it out in the spring, and it will begin to bloom in July and continue to bloom until the first frost comes along. It is a little matter to give it the proper attention. There has been very little work done along some of these lines, but there are immense possibilities.

Mr. Wyman Elliot: Are you speaking of the perennial or the annual phlox?

Mr. Harrison: The perennial every time; I do not bother with the other. This western world is the busy end of the world, especially in the spring time, and we have to plant things that stay planted, and so we have been giving special attention to varieties that will not need so much special care and attention every year.

GINSENG (POMAX ININQUEFOLIUM).

PRESTON MC CULLEY, MAPLE PLAIN.

This plant grows wild in most of the hardwood forests, from Maine to Minnesota, growing, as it does, on the richest soil. The forest has been cut down and good farms made where ginseng used to be dug in large quantities, and what is left has been searched for so closely that there is very little left, except in some remote localities. Therefore, if we would keep on supplying the Chinese with ginseng it must be cultivated.

Many tried to grow the root, but failed; some who were closer students of nature succeeded in making it grow from seed and roots, believing that if some way could be found whereby ginseng could be grown that there would be considerable profit in doing so. About six years ago, I learned that there were several men who were having good success in raising the root under cultivation. Securing such information as was then available I planted a small bed of wild roots five years ago and have been adding to it every fall all the roots that I could dig or buy.

Ginseng does best in a rich, loose soil, preferably on new land. My first beds were planted in the woods, after having plowed the ground ten or twelve inches deep and forked it over to remove all roots and trash. They were planted with the bud, or crown, about two inches deep, the plants being set about a foot apart.

The plants set in the woods have made a good growth and have had good crops of seed every year since the first year. I did not always succeed in harvesting the seed, as the mice stole almost all of two crops in the woods. Poisoned corn was left untouched; the only way to save a crop of seed was to make a tight board fence about two feet high and cover the joints and corners with a short board projecting over, and set traps all around; I caught about one hundred this year and almost as many last season.

Plants and seed of cultivated ginseng.

As the plant is propagated from seed, one must know how to handle the seed before he can have much success in growing ginseng. If seed gets thoroughly dry for any length of time only a very few will sprout, and if stored or planted in too wet a place they will rot. Some plant as soon as picked, others store in boxes, mixing the seed with sand or dirt.

Care must be taken to keep the seed moist from time of picking until it comes up, which is usually eighteen months; if the seed is partially dry it may not come up for thirty months. You can readily see that the handling of the seed is of considerable importance in ginseng culture. I lost most of my first seed from storing them in too wet a place, getting only about 140 plants from 3,000 seed.

Seed is stored in boxes in the cellar, mixed with sand and dirt that has been sifted or washed through a sieve with a smaller mesh than the smallest ginseng seed. So that when the seed is wanted for planting one year after being put in storage it can easily be had by placing the seed in a sieve and washing in a tub of water. If this is not done considerable inconvenience will be had in planting on account of trash and small stones.

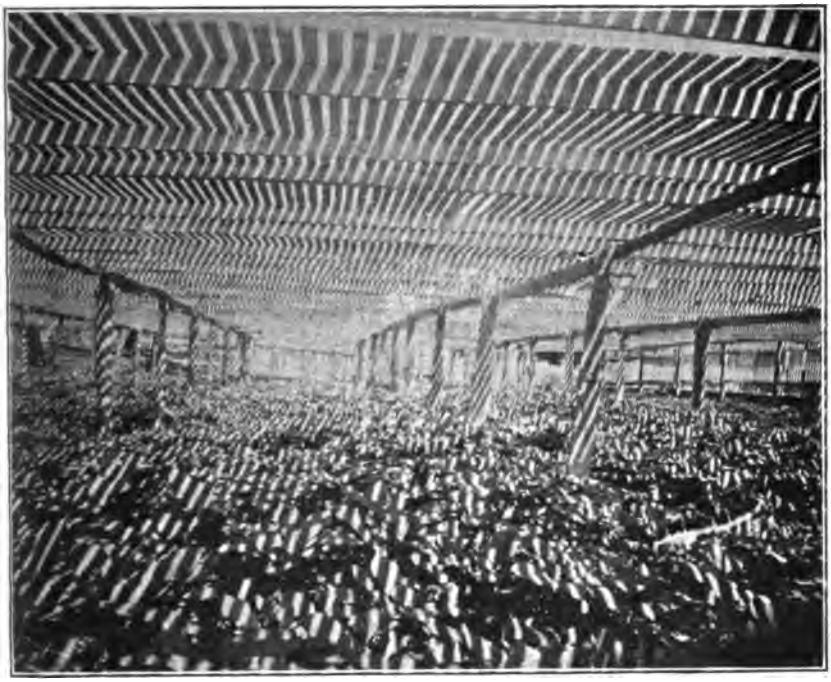
In planting, the seed beds are made four feet wide and as long as needed. The beds are divided with boards, six inches wide, for walking on in tending the beds. The seed is planted about one inch deep, in rows four inches apart, and two inches apart in the row. These are left to grow in the seed bed two seasons. As soon as the bed is planted a mulch of sawdust should be put on about three-fourths of an inch deep, and on top of this another mulch of leaves, straw or hay should be put during the winter. In the spring this last mulch should be removed and the sawdust stirred with a rake, so that the tiny ginseng plants may come up. If this mulch is left on too long they will be smothered, and if not put on at all they may winter-kill. Both roots and seed should stay frozen until spring.

After two seasons in the seed bed they are dug in the fall, after growth has ceased, and transplanted to about seven or eight inches apart, where they should remain until ready for market. They begin to bear seed when two or three years old and keep on increasing each year until they have from seventy-five to one hundred seeds per plant.

As ginseng naturally grows in shady places, some shade must be provided, or the sun will kill it. It does well in the timber, but the shade is irregular, some places too much and others not enough, also the tree roots get in the beds and sap them of moisture and fertility. If as good soil can be had in the open they will do better under artificial shade, which is usually made of lath, nailed one-half in. apart. This distance is thought about right, but I am not certain but what the plants would make a more rapid growth with more light, about one-third instead of one-fourth light.

Almost every grower has his own method of erecting the shade. One way is to set posts, which are eight ft. long, two feet in the ground, eight feet by thirteen and one-half feet, nailing round poles or 2x4 on top of posts the short way. On this are laid the frames of lath made of two pieces of 1x4, 14 feet long, set about 30 in.

apart, and lath nailed, as stated before, one-half in. apart. This height gives room to stand erect and a chance to work. On seedling beds the shading should not be over two and one-half feet from the ground on account of water dripping from end of lath; if placed six feet high, as on older plants, seedlings are apt to be washed out.



A ginseng plantation—under screen.

This shade should be put up in the spring about the time the plants are coming through the ground, which is about May 1 to 10, and must be taken down every autumn before snowfall.

Probably some would like to know how much could be made off of an acre of ginseng. In the first place very few have that much, and no one has dug that much in one season, so it would be mere guesswork to make an estimate; but at present prices it would be a handsome sum, much depending on soil, shading, fertilizer and the man who takes care of it. This last fall I dug some roots which were under cultivation three years, and they were five times as large as when planted, and some roots planted five years were ten times as large as when put in the ground. These averaged about five roots per pound; in drying they shrank two-thirds the weight. They sold for seven dollars per lb., the price of cultivated roots dropping to the same price as wild roots.

The Department of Agriculture sounds a note of warning about going into ginseng culture. They recognize it as a legitimate business but liable to be overdone. Whether they are right or not the future will reveal.

As we are selling the Chinese less than one-fourth cent's worth of ginseng per capita annually and the demand has never been supplied and prices have been steadily advancing for the past fifty years and have doubled in the past ten, it would seem that this trade could stand considerable expansion without any great reduction in price.

Any one can succeed in growing ginseng who can raise fruit or garden vegetables. Ginseng culture is not a get rich quick scheme, as it takes time and considerable money to get much of a start, and as it is a new industry we all have much to learn about it.

Mr. C. S. Harrison (Neb.): I think a man is fortunate if he has plenty of healthy plants at present. There is nothing permanent about the thing. They used to ship sassafras to Europe, and it was thought to be a great thing, but it did not take long for it to die out altogether. There is a bulletin out from Cornell university describing six diseases which have invaded the ginseng plant. The wilt gets into the stem and crown. In another instance the root rotted. They advise digging up the affected root and throwing it away and starting out with fresh seed in a new place. You are very fortunate in having no diseases here in Minnesota. If you are going into the business you had better be sure you are getting live and healthy roots. You might get one plant infected with one of these diseases that might clean you out entirely.

Mr. A. Brackett: I would like to ask Mr. Harrison where he got hold of that. One of the best authorities I could get hold of says there is absolutely nothing that preys upon ginseng. I thought Mr. McCulley's paper was very good and that he was very conservative in his estimate. I asked him what he could sell the seed for, and he told me, and taking that amount to the acre would amount to something near one hundred thousand dollars. A great many people say we do not want to grow ginseng. I advise such people to grow radishes. They have good success in growing radishes and getting them to market, and sometimes they can get a cent a bunch for them. I think there is nothing in the world that offers better inducements for growing than ginseng. The Chinese do not get over their superstitious ideas very quickly.

Prof. N. E. Hansen (S. D.) I saw an item in the American Florist a few weeks ago by Vaughn, who says that the Chinese discriminate against the cultivated ginseng, claiming that cultivation takes the potency out of the root. (Laughter.)

The President: I would like to know how you can tell the difference?

Mr. Preston McCulley: That is very easily answered. The wild root in the forest will run from one to fifty years old. I have dug several specimens thirty and some forty and fifty years old. The average wild roots will run about 50 or 60 to the pound, while the cultivated are much larger. The cultivated roots do not show their age as much as the wild roots.

Mr. Harold Simmons: There is no trouble to distinguish between the wild and the cultivated ginseng. I have cultivated roots that will weigh fourteen ounces, while the wild root will not average more than half an ounce. I have been in the business now nearly nine years, and if only ten per cent of the ginseng grows we can still cultivate it with profit. We have such an innumerable number of people to cater to on the other side and the product does not increase very rapidly. During that time the price has gone from $2.65 a pound for the wild to $13 a pound for the cultivated root last season. You hear some people speaking of its quality. Ginseng has no quality; the only quality is in the size of the root, the biggest roots commanding the highest price.

Mr. A. Brackett: I would like to ask Mr. Simmons whether he has ever had any trouble with disease or whether he has ever heard that ginseng is subject to disease?

Mr. Simmons: Ginseng in its wild state suffers from no disease, but the mice will eat the seed. Under cultivation a number of diseases develop, I forget the names of them, but a bulletin has been issued by a professor of Cornell University on diseases of ginseng which covers the ground very thoroughly.

MY APPLE STORAGE HOUSE.

J. A. HOWARD, HAMMOND.

To successfully gather and market a large crop of apples a storage house of some kind is necessary. The one I built in 1900 answers very well for a young bearing orchard of 1,500 trees. The building is sixteen feet by thirty feet and ten feet high. It is papered and sided and filled with sawdust, papered, stripped and sided again on the inside, till there are two dead air spaces besides the four inches of sawdust, and seven thicknesses of paper. The ice box is at the end, raised fifteen inches above the floor. One-fourth of the room is used for ice with a partition of galvanized iron in three foot sections so that it forms circulation. It takes about twenty loads of ice to hold it at about 40° from the time the Duchess are put in till the nights are cool enough to do without ice, about November first, when by keeping the door open nights and closing it in the morning it keeps them cool enough.

Apples hand picked from the trees and stored in crates, or piled in small bins, will keep enough longer in a storage of that kind to well pay for the time and trouble spent.

Mr. Howard: It is just a farmer's storage plant, and I cannot keep it as cold as a regular cold storage house, but I keep it at about 40 degrees. Those other places are kept at from 36 to 38, but I don't think it is necessary.

The President: How long do you store your apples?

Mr. Howard: I put the Duchess in when I gather them, just like potatoes, five to six hundred bushels at a time. Then I put the ice and keep it at about 40 until the Wealthy are ready, then I ship the Duchess and put in the Wealthy. My Wealthy brought me $3.25 and I shipped the last of them to St. Louis; so you see there is an advantage in keeping them in cold storage.

The President: Why do you not put the Duchess in barrels? I never heard of putting them in in bulk.

Mr. Howard: I have tried that and in order to do that I have to have it colder. After an apple has been in the barrel two or three days it will begin to sweat, but you put them in the storage house and cool them down, and it will do away with that. That is the experience I had any way.

Mr. Merritt: How do you regulate the temperature?

Mr. Howard: The ice regulates that.

Mr. Merritt: You regulate it by the amount of ice you put in?

Mr. Howard: I do not fail to put in enough to hold the temperature at 40 degrees.

Mr. Ferris (Ia.): Is the temperature the same top and bottom?

Mr. Howard: Just the same top and bottom; it is practically airtight.

Mr. C. F. Gardner (Ia.): What did you get for your Duchess?

Mr. Howard: $2.25 to $2.50 per barrel when the market cleared up.

Mr. Gardner: What quantity of ice does it take?

Mr. Howard: Maybe twenty loads that a team would haul.

Mr. Merritt: Just one filling?

Mr. Howard: Yes, one filling. When the Duchess were shipped the Wealthy were put in. When we put the Wealthy in we put in enough ice to cool them. Through the ripening process they will heat, but after that you can ship them without danger.

Mr. Preston McCulley: What is the cost of the building?

Mr. Howard: I cannot answer that question very definitely. I did the work myself; I got the timbers out and cut them at my saw mill, and I never figured the cost.

Mr. W. L. Taylor: Did you put them in barrels?

Mr. Howard: No, on the floor just like potatoes. I had from six to seven hundred bushels on the floor at one time.

Mr. Ferris: How about drainage?

Mr. Howard: It is just as dry as it is in this room.

Mr. Martin: Do they not sweat the same in the pile as they do in the barrel?

Mr. Howard: Yes, but the ice absorbs the moisture; it is taken up with the ice and condensed and goes through the waste pipe.

Mr. McCulley: Does it make any difference whether they are put in wet or dry?

Mr. Howard: You can put them in wet and the next morning they will come out perfectly dry.

Prof. Green: That dry air absorbs the moisture?

Mr. Howard: Yes, it absorbs the moisture, and they become dry again. That kind of a storage house is as good as any farmer needs for the purpose.

Mr. Martin: How have you provided for ventilation?

Mr. Howard: It is an airtight building. The warm air is driven under the ice and forms a circulation.

Mr. Martin: Is the ice laid close so that the only way the cold air can escape is underneath?

Mr. Howard: The cold going down cannot go through the studding; the studding is made of slat work and they overlap. The ice being colder the cold air goes down underneath and the warm air goes up through the slat work.

Mr. Martin: They are lapped down?

Mr. Howard: Yes, from three-quarters to one inch. The cold air cannot come out because it settles.

Mr. Penning: Does it not freeze?

Mr. Howard: Yes, it does. If I were building another I would not make it just like this one. I would make it so it would not freeze. The first two years it didn't freeze, but now it does, and I have either got to paper and side it again inside or outside. I don't want to lose any more room.

Mr. Penning: The sawdust will settle in time.

Mr. Howard: Yes, the sawdust settles so it freezes now. Another thing, I don't use any ice in the fall after the 20th of October; after that time I don't need any ice. I open the building and let it get cold and then shut it up.

Mr. Taylor: What kind of paper do you use?

Mr. Howard: Common building paper, the red rosin building paper. You don't want to use tarred paper.

Mr. Elliot: Can you put a cold storage house on top of that?

Mr. Howard: Yes, I intend the basement to be for storage and the present storage room to be the packing room.

Mr. Elliot: In speaking of sawdust, they have at Winona a factory where they make a sort of flax felt, and that is the very best thing to pack in. It is made by hand, and when you pack it in there is no settling.They call it flax felt.

Mr. Howard: I saw that at St. Louis, and I thought it was perfect.

Mr. Marsh: I have been a great deal interested in this topic, but it seems to me there is one thing that might be improved, and that is the method of making a building warm. I think the principles are of general application, particularly in farmers' buildings. The only warm building material we have is air, as I demonstrated two years ago, and if we can confine that air we have a warm building, and while Mr. Howard finds the use of wood satisfactory it seems to me plaster would be more effective. Regarding this Winona flax fibre. It costs practically the same as back plaster, and I doubt whether it is as effective as back plaster if made of a hard wall plaster. It seems to me there is a great mistake made, generally speaking, in making buildings warm or cold by using too much wood and too little plaster. I believe the gentleman is thoroughly right about the rosin paper. Tar paper is not good for any purpose in the long run. It becomes brittle and swells much more by reason of heat and cold, and the result is that it will crack and let in air. The common rosin paper is by all means more effective.

Mr. Elliot: I can only say this in reference to adamant plasters, the swelling and shrinkage of the wood causes the plaster to crack wherever that swelling or shrinkage occurs. It contracts with the wood, and unless you have the walls made so they are solid all around there will be a chance for the air to communicate.

Mr. Marsh: That is an argument that has been used a great deal against back plaster, but if we take into consideration the fact that the studding is nearly two inches thick, and if it was put in properly the shrinkage would be but a trifle, and if the back plaster was put on as it should be there would be no shrinkage at all. I would advocate that your wall be back plastered and then face plastered, because if it is properly done it will stand a great deal of injury. Of course, in a great many localities in the country this could not always be done. It is not difficult to put on, but the proper method is not in all cases understood. I mention this point because I think there is a great deal of money lost in these buildings by not making sufficient use of plaster.

THE WEALTHY AS A PARENT OF SEEDLINGS.

A. B. LYMAN, EXCELSIOR.

The premiums on seedling apples at our state fair and horticultural meetings have been more than doubled within the last few years. This shows the increasing interest with which seedlings are regarded. Our leading varieties, such as Wealthy and Patten's Greening, were untried seedlings a few years ago, and now they are in the front rank.

This growing interest in originating new varieties makes it important that we consider methods of furthering this work to the best advantage. Our endeavor will be to show the value of the Wealthy as a parent.

The Wealthy was originated over forty years ago by Peter M. Gideon, at Excelsior, Minnesota, from apple seed that he received from Albert Emerson, of Bangor, Maine. Mr. Gideon received two lots of seed, one marked "apple" and the other marked "crab." At the time the Wealthy was originated Mr. Gideon stated that "he didn't know from which lot the Wealthy came." We cannot then consider the Wealthy as regards its ancestry, but do find within this variety special points of merit that recommend it as a parent variety.

A marked characteristic of the Wealthy is productiveness. Those who have fruited the Wealthy know it to be one of the most productive varieties. We mention productiveness first because it is one of the strongest points in favor of a fruit. You may have a variety of the best quality, but if it is unproductive it is of little value.

Another characteristic of the Wealthy is uniformness of type. By this we do not mean that they are all of one size, but rather they they are all built on one general plan, well rounded out and not uneven or misshapen as some varieties are.

Wealthy seedlings on the Lyman place, standing in nursery row untransplanted since 1876.

Another marked feature of the Wealthy is its color. Here nature has outdone itself. The Wealthy has but few equals in color, and color adds great value to an apple.

In considering points of special merit found in the Wealthy let us not forget quality. What apple is of better quality than the Wealthy?

Can we not then safely, from a theoretical standpoint, recommend the Wealthy as a parent variety because of these marked characteristics, namely, productiveness, uniformness of type, color and quality?

In noting results that have been obtained by the planting of Wealthy seed I can't go into this subject in a general way, but must confine myself to home experience.

The "Perfect," one of the transplanted Wealthy seedlings in the Lyman orchard.

In 1876 my father planted the seeds of Wealthy apples that grew on Siberian crab trees that were top-worked to Wealthy and stood somewhat by themselves. The apples thus originated are remarkable for being apples of standard size, there being but few crabs in the lot. Their parent, the Wealthy, has transmitted the four characteristics named to a marked degree. These new varieties are productive, growing fine crops of apples from year to year, and they are apples of the Wealthy type. They are nearly all apples of fine color, even the late varieties are apples that color well when left on the trees until fully ripe. As to quality, would say that at the last winter meeting of this society we exhibited but four varieties, and they took the leading prizes on seedlings in competition with the seedlings of Minnesota and of some outside states. One variety took first prize as a best early winter seedling and another variety took first as best late winter.

Some say, "We have the Wealthy; what better do you want?" The Wealthy is a grand variety, but we are greatly in need of a winter apple. The horticultural society has offered a prize of $1,000 for a winter variety that is of standard hardiness and a long keeper. You may be the lucky winner. Let all have some part in this work and save and plant some apple seeds from year to year. Do not plant seeds of scrub apples, but rather use the seeds of apples of high quality, like the Wealthy, and your efforts are likely to be crowned by a measure of success.

Mr. Philips (Wis.): Have you any seedling of the Wealthy that you would set in place of the Wealthy for a commercial orchard?

Mr. Lyman: I certainly have. There are some I would prefer to the Wealthy on account of being later varieties. They are in the experimental stage, and they are a good variety, but I am not going to claim everything. There is another point I wish to mention. Here is a plate (indicating) that is not a direct seedling of the Wealthy, but a seedling of a seedling of the Wealthy. This is the second generation from the Wealthy, and you can see that this color is not due to its grandparent. It is this apple that we have named the "Burt." These (indicating) are late apples and have the Wealthy characteristics of color and shape.

The President: Here (indicating) is a plate of Evelyn; describe that to us.

Mr. Lyman: That is the apple that secured the highest award last year and also secured it this year. The tree is a little different from the Wealthy; it is not as upright a grower as the Wealthy. It is a somewhat spreading grower, it has rather a large leaf. It is a very productice variety and bears many bushels of fruit from year to year.

Mr. Philips: How many years has it borne?

Mr. Lyman: I did not grow the seedlings. The seedlings originated in 1876, and they are now quite old trees. It bore well last year, and it bore well this year; it is a very good bearer.

The President: How many months have you added to the season of the Wealthy in any of these seedlings?

Mr. Lyman: Well, I regard the Wealthy, the Patten's Greening and the Hibernal as fall apples; that is what they are with us.

This apple (indicating the Evelyn), from an experience of years, has kept well in a commercial way until this time (Dec. 4) and later, and no spot on them. We have given them no extra care except to put them into bushel baskets. I looked over nine bushels, and there was not an apple in the lot that was spotted. They were picked at the same time with the Northwestern Greening, the 20th of October. I put them in the corn crib, and then later they were put in the cellar. The Wealthy were handled in the same way, but were picked six weeks earlier, and they are still good to use. This is the apple (indicating the Evelyn) that Mr. Elliot spoke of. He showed two specimens that had been returned from St. Louis. They had been gathered on the 23rd of September and had not yet colored the natural color. We named that apple the "Evelyn." We call it an early winter apple. It is an apple that can well be held in a commercial way.

Mr. Elliot: I have just been thinking over what the Wealthy has done for this northern country. I saw the first peck of apples that was ever placed on exhibition at any fair in our state, and I tell you it did my eyes and heart good to look at them, and ever since that first exhibition I have kept track of the Wealthy. I have one tree growing now that is a sprout of the original tree. In all those years since the Wealthy originated there have been a great many seedlings raised from it, and wherever you find a Wealthy seedling you find the ear marks of its parent, you can note the individuality of the Wealthy. In some it runs in one direction and in some in another direction, but it is somewhat like the members of a family in the human race, there are certain characteristics in the family that cannot be mistaken. I have seen apples not as large as the Transcendent crab but as perfect as the Wealthy and with the same appearance and coloring. It possesses a remarkable degree of prepotency, and it has stamped its impress upon the whole northwest, and I believe from the Wealthy and its seedlings we are going to develop an apple that is going to be a long keeper. Many of the seedlings of the Wealthy are a great deal longer keepers than the Wealthy itself, and it is my impression that by following out this course their season can gradually be extended until we get our long-keeping apple. In the case of this apple of Mr. Lyman's here, I want to speak a word about it in regard to its size. It has increased in size somewhat under Mr. Lyman's conditions, but not as much as it has in being transferred into other environments, and for that reason every one who has a promising seedling should at once place it in the hands of some one who can give it a different environment from that of its original position in order to study what it will do, and when a man has got something that he thinks will do well he should place it with our experiment station and let it be tried there, and before it is generally disseminated it should be taken to various trial stations where a thorough test may be given it in different soils and different locations. If we do that we shall know just what to expect, and I do not believe there is any man in the state that will take advantage of the fact that it is on trial and will propagate it. I do not believe there is any man at any of our trial stations that would do that. If we can gather up all these promising seedlings and put them under propagation we can soon develop what we have got.

Mr. Philips (Wis.): Is not that seedling (referring to the Evelyn) liable to come in contest with the Wealthy in the same way as the case we had here yesterday?

Mr. Elliot: It is of a more conical shape; it is a different shape.

Mr. Yahnke: There is just as much difference as there is between the Patten's Greening and the Northwestern Greening.

Mr. Elliot: There is the Peter; it does not grow like the parent tree in the nursery, but as it becomes older it assumes that form more.

Mr. Sahler: Will that tree (Evelyn) overbear?

Mr. Lyman: No, it is not so prolific as the Wealthy, but it is a longer keeper.

Mr. Lyman: Mr. Elliot spoke about giving scions to the trial stations and to the experiment station. While we are willing to do that, we are not going to put a fence around them, and if nurserymen want to take hold of them we shall not impose any restrictions. After a while the same rule will apply to them, if they are a good thing at Excelsior they will be good somewhere else, and I believe they will eventually be of great benefit to the apple industry of the country. (Applause.)

Mr. Underwood: We have paid so much tribute to the Wealthy and the Peter and to their originator, Mr. Gideon, that I wish I might fittingly express my appreciation of Mr. Lyman, the elder, who originated these seedlings from seeds saved from specimens of the Wealthy, and I hope at some time we may be able to properly commemorate the life and services of Mr. Lyman. I would like to see a portrait of Mr. Lyman in our collection, and I trust that some fitting tribute will be paid to his memory. I simply wish to call your attention to this matter.

The President: I wish in behalf of the society to thank Mr. Underwood for calling our attention to this matter. I am sure that all of our membership who were acquainted with Mr. Lyman will sympathize and approve of the idea. Mr. Lyman was a man whom it was a pleasure to meet and whose acquaintance was something to be desired, and I know we all take pleasure in honoring him.

STARTING AN ORCHARD ON A MINNESOTA PRAIRIE.

J. L. TEIGLAND, MINNEOTA.

We who live on the prairies of southwestern Minnesota are fortunate in having an excellent soil for orcharding, it being as a rule a deep, black loam, underlaid with clay, which is usually considered an ideal soil for an orchard.

A north or northeast slope is not so liable to dry out with the southwest wind, and for that reason should be selected in preference to other slopes. If your site is not already protected from the sweep of the southern and western winds, then you should prepare to have a few rows of golden willows, or other fast growing trees, planted on the south, west and north sides of your site, but leave it open towards the east. If you set out trees for wind protection that are three or four feet in height at the time of planting your fruit trees, they will be large enough to protect the fruit trees by the time they get into bearing.

Residence of J. L. Teigland, Minneota.

In selecting varieties of fruit trees it will depend on whether the orchard is intended for home use or for the market. For home use a person can profitably use a greater number of varieties, but they should be good bearers of fruit of good quality, and their season should range from early summer until late winter. For market it is not, as a rule, advisable to plant many varieties, but they should be heavy bearers of such fruit as would sell well on the market. Leave alone all varieties that are tender, easily blighted or that produce fruit of a poor quality.

Buy your trees from responsible northern nurseries. If possible, get trees either on crab roots or that have been grafted by the long scion and piece root method.

Plow your ground deeply, either in the fall or as early in the spring as possible. Disc or drag it several times to get it well pulverized and to kill any weeds that may start.

Young Duchess tree in J. L. Tiegland's orchard.

For staking out the ground and planting I have found the following plan easiest to follow and surest to give satisfactory results: Stake out your ground on two contiguous sides, being sure to get it percectly square. Between the stakes on one side stretch a check-wire from a corn planter as a guide. Now stretch another wire of the same kind to the other stake, but have this wire on stakes that are easily moved from place to place. Be sure that where the wires cross that the button of the top wire is directly over the button of the bottom wire. Put in a stake where the wires cross, another under the fifth button from there, and so on through the field.

Now take up this wire and move it eighteen feet four inches, or five links, on the other wire, to the side, and move it forward two and one-half links and put in stakes under the same buttons you did for the first row. The next row you do the same with, only draw the wire back two and one-half links; and so on through the field, moving the wire forward and back every other row. The result will be that you get your trees eighteen feet four inches apart in the row, and the rows eighteen feet four inches apart,

Have your trees heeled in on the ground in a convenient place, keeping the roots in wet earth.

If possible, get a thresher's tank and in the bottom of each hole, which should have been made wide and deep, throw a large pailful of water. Now throw in some top soil and mix it until it is a thick mud.

Trim your tree, cutting off the ends of all cut and bruised roots, and cut out about one-half of the branches, and those that remain should be cut back about half way. See that the top is evenly balanced.

Now set your tree in the mud so that it will stand from six to fourteen inches deeper than it stood in the nursery. Being planted so deep it won't be so liable to dry out. It will also have a chance to send out roots from above the graft, making it a tree that is more certain to stand our test winters.

Fill the hole almost full, packing the earth firmly. Leave a saucer-shaped hollow around the tree to gather the rain. Wrap your trees with burlap, newspapers, or give them some other protection against mice, rabbits, sun-scald and whiffletrees.

Drag your orchard several times to break up the tracks left by the planters, after which it might be planted to some kind of cultivated crop, corn probably being the best in exposed situations if the stalks are left standing to catch the snow during the winter, thereby protecting the roots.

Cultivate your orchard thoroughly to keep the moisture from escaping, and you will be rewarded with an almost perfect stand.

Prof. Robertson: I would like to ask Mr. Tiegland why he digs a hole instead of throwing a furrow out?

Mr. Teigland: I found it recommended in the Horticulturist to plow out a ditch the first time, and every time I visited those trees I was ashamed of it. Whether any one else can steer the plow straight I don't know, but by using the check-wire of the corn planter I can get the rows perfectly straight, and you will find if you try it that using the check rower is the best method of striking the ground out straight.

Mr. Martin: Does not the planting of corn enter into the preparation for the winter?

Mr. Teigland: My paper is written from the standpoint of one who is living on the western prairie; and in regard to corn I wish to say that for the first two years there is not much trouble about it, but after the trees become of a certain age I would not have the corn in.

The President: You leave the stalks standing through the winter for protection?

Mr. Teigland: Yes, sir.

Mr. Shepherd: Why is the northeast slope considered the best location for planting an orchard? I would like to know the reason.

Mr. Teigland: Personally I have no experience in that line, but it is always recommended by the Horticulturist. That is the reason why I thought it was the best plan. It is not so likely to dry out with the southwest winds.

Mr. Richardson: I would like to ask the gentleman whether he has ever had any trouble by putting water in the hole, whether he has ever had any trouble in the way of killing trees? I have. I would not put any water in, I don't care how dry the ground might be. I put in dirt and put in the roots and pack them as solid as possible; I put the dirt in as solid as I can pack it. I would not have that mud in. I have killed trees by doing that. I would let that water soak away.

Capt. Reed: This question of where to set apple trees, on what kind of ground, is a very important question. I think it is a question that has done considerable harm to our state, because it has always been given out that in order to make a tree live you must set it on a north slope. That is the general belief, that you must set an apple orchard on a north slope. Now, my experience is that an apple tree set on a north slope does not do nearly as well as if set on a south slope, for the reason that it does not get as much heat, it does not grow as fast. If a man wants to put out an orchard and never give it any attention, then let him put it out on a north slope, because the trees are not so apt to start in the spring before it thaws out. My experience is that an apple tree will grow on almost any kind of slope or on level ground, but it grows the fastest and best on a gentle southern slope; but I want to be prepared to mulch it and keep it back in the spring, and after the frost is out let it grow as fast as it will; it makes a better producing tree by far. In 1900 I set out some Patten's Greening, and to experiment I put them in my garden on a southern slope. One or two I set out in another place. I planted them in the shade to see if it would not make them hardier, but they were no hardier and did not grow so fast. Those I planted in my garden on a southern slope are now twelve inches or more in circumference, while those planted in a shady place on a north slope are not more than four inches in circumference, and it will take five years before they come into bearing condition, while the others are bearing now. Now, in regard to setting trees. I have adopted the rule which I saw recommended in the papers, running a deep furrow, running the plow back and forth in one furrow, and then where the rows cross if you want the hole deeper it is much easier to dig a hole in that deep furrow with a spade than to bother with a check rower, and that deep furrow where your row runs north and south gathers the moisture, and it is a great deal better for the tree to have your land plowed deep and then fill back with light, rich dirt than to dig a single hole.

Mr. Ferris (Iowa): I rather think I may be exceeding my privileges in trying to instruct Minnesota people, because I am from Iowa. Here is my brother-in-law (Mr. Richardson), I like to jump on him sometimes. He and I practiced in the same town for some time, and now he is telling us that we should not water an apple tree when planting. He says he spreads the dirt around the roots and tramps it in. When I plant an apple tree I fill in enough dirt to cover the roots well, then put in water and let the tree go and plant another, and then I fill it in and by putting dry earth on top of it prevents baking. In this way I have had good success in planting apple trees for the past twenty-five years, and I think I shall have to continue that plan.

Mr. Richardson: If you did that in Minnesota in our stiff clay subsoil it would kill your trees.

Mr. Ferris: We are not going to have any of your soil transplanted into Iowa. If you have a good loam and have not got a clay subsoil you had better put water in.

Mr. Teigland: I think Mr. Richardson or any one else would not have any trouble about the soil baking if they would run the cultivator through once or twice a week. I went through twice a week with the weeder, and I am sure everybody else would get perfectly good results by using that method. That is what I am doing, and my results are good.

Mr. Richardson: It does not bake at the top, but at the bottom.

Capt. Reed: There are two important things generally neglected in setting out apple trees. This first is that the roots are not properly trimmed before the trees are set in the ground, and the next is that the roots should be puddled in clay and water of a thin consistency before they are planted. These are two things very essential to the successful setting of apple trees.

LEGISLATION PERTAINING TO THE PRINTING OF REPORTS FOR THE MINNESOTA STATE HORTICULTURAL SOCIETY.

An act pertaining to the reports of the Minnesota State Horticultural Society.

Be it enacted by the Legislature of the State of Minnesota:

Section 1. There shall be annually printed and bound by the state printing commission five thousand (5,000) copies of the report of the Minnesota State Horticultural Society; provided, the number of printed pages of the same shall not exceed five hundred and twenty (520). One thousand copies of the same, more or less, as requested by the executive board of said society, shall be printed in monthly installments and bound in paper as a monthly report, to be distributed among the members of said society.

The remainder shall be bound at the close of the year in cloth and shall be distributed by the society as follows:

One copy to each of the state officers, members of the legislature, members of the board of regents of the state university, state historical society, members of the board of the state agricultural society, one to each public library in the state when application is made therefor, and the remaining copies as the Minnesota State Horticultural Society shall deem best.

Section 2. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

Section 3. This act shall take effect and be in force from and after its passage.

Approved April 17, 1905.

LEGISLATION APPROPRIATING MONEY FOR THE MINNESOTA STATE HORTICULTURAL SOCIETY.

An act to appropriate money for the expenses of the state government and for other purposes.

Be it enacted by the Legislature of the State of Minnesota:

Section 1. The sums hereinafter named, or so much thereof as may be necessary, are hereby appropriated from any moneys in the treasury not otherwise appropriated, for the purposes specified in the following sections of this act, to be available, where not otherwise stated, for each of the fiscal years ending July 31, 1906, and July 31, 1907:

Section 17. 59. For printing and binding reports of Minnesota State Horticultural Society, as provided by law, in lieu of all other appropriations for said purpose, for the year ending July 31, 1906, and annually thereafter, $3,000.00.

60. For maintenance of the Minnesota State Horticultural Society, in lieu of all other appropriations for that purpose, for the year ending July 31, 1906, and annually thereafter, $2,500.00.

Approved April 19, 1905.

DUST SPRAYING.

G. C. JOHNSON, KANSAS CITY, MO.

I am invited to lay before you a comparative statement of the value of both systems of spraying trees, plants, vines and vegetables, based upon our own experience in the orchard and supplemented by the experience of the commercial orchardists who have used the dry process since we brought it into public notice in the season of 1900. While we have kept in very close touch with those who have used the dry process of spraying and are familiar with the results obtained better than any other person, yet the opportunity of meeting many of our patrons personally at the late universal exposition in St. Louis broadened the scope of our own experience and verified many points on which we had been experimenting. We will, therefore, endeavor to lay before you the results obtained so far in the use of the dry conveyor and its value to the fruit grower, as compared with what has been accomplished by the use of water for the same purpose, under the following title, *the simple change from water to lime dust as a conveyor of the standard formulæ for spraying, and what the change means to the fruit grower.*

The conditions you have to meet, climatic and otherwise, in the growing of fruit in Minnesota are different from what we have to contend against in Missouri, and these varying conditions and different insect pests peculiar to our varied climate in the fruit-growing sections of the United States must be intelligently studied. In the citrus orchards of Florida and southern California, for instance, the rust mite and the red spider are of very grave concern to the fruit grower. The dry conveyor is the only one that can be successfully used in combating these pests. In Colorado and the higher altitudes, they are not bothered with fungous disease as we are in the middle west, but the codling moth is very much in evidence. The natural conditions that must be observed to successfully control this pest require perfect distribution of arsenic and in unlimited quantity. Both of these conditions are obtained by the simple change of conveyor from the *wet* to the *dry* form. The superabundance of lime, the neutralizer, preventing the burning of the foliage, the amalgamation of the arsenic with the lime dust is perfect, and by using nature's distributors, the air and the wind, the distribution is perfect and cannot even be approached by the artificial distribution of the force pump.

In the treatment of fungus we have a far more difficult proposition. We know the remedy, blue stone, or sulphate of copper, but how to apply it so as to get the direct, positive action of the remedy, as we do when we fight the biting and chewing insects, is the problem we must solve. In our earlier efforts we found that when used as an insecticide, the dry conveyor was far superior to the liquid, but when used as a fungicide it did not give the positive results we expected. When you fail in any direction in life, it is a wise precaution to stop and determine the cause and remedy it if possible. In order to determine positively what we were doing, we went to the laboratory to find out. We were at this time combining the blue stone with the lime by making a solution of the blue stone and dry slaking the stone lime with this solution into a powdered form. We thus brought lime, water and blue stone together, as in the formation of the liquid Bordeaux. The laws of chemistry demonstrated that when this is done in any manner, the *positive action* of the blue stone is lost, chemical changes at once take place, and new compounds are immediately formed. We therefore reasoned that if we could get the positive action of the blue stone, as we did of the insecticide, we could get positive results. We are very much gratified to state that we have accomplished this, and although the past season was an unusually severe one with us for the test, on account of excessive rains, and therefore favorable to the development of fungi, we controlled it, and the only question to be determined now is the ratio to be used for effective work, as with the insecticide we can apply the sulphate of copper of any strength desired to all kinds of foliage. A simple change in conveyors that thus changes a hazardous treatment to one of the utmost simplicity, still using the same recognized standard remedies, is surely worth our while, and needs but to be known to insure its universal adoption.

It may be well to remind you, that in the introduction of new methods for protecting orchard crops, the growers are apt to expect too much, comparisons of results are made with well established methods in like lines, and they lose sight of the important fact that the new system, whatever it may be, lacks in rotundity and completeness, that can be acquired only by patient effort and long practice. We were forcibly reminded of the injustice of this practice by a conversation we had with a fruit grower, at our exhibit at the World's Fair, who had used both the liquid and the dust sprayer on his apple trees the last season. We inquired if he had gotten as good results from the use of the dust spray as he had from the liquid. He replied, "Not quite." We then asked him what formulae he had used and how he had prepared them. He had used the standard Bordeaux formula in the liquid, and with the dry conveyor he had used a formula that was unscientifically compounded and only succeeded in getting a poor quality of dust that did not cling well to his trees. He was an expert with the liquid, a novice with dust. The simplicity of the latter process and the superabundance of lime he must necessarily use had saved him from serious consequences. We asked him if he was going to continue the use of the dust, and he replied, "Yes, I think the dust spray has come to stay."

This is but a fair example of the conditions under which the dust process has made for itself the most wonderful record in beneficial results to the fruit grower that has ever been brought to their attention. Pitted against the old system, fortified by long practice and all that science and skill could do to perfect it, both as to appliances and formulae, the newcomer has not lost a single patron, but steadily forged ahead on its merits, and in the short space of three seasons has spread into every state in the United States and four foreign countries, and not a single valid objection has been urged against its use. When we consider the amount of time, money and energy that have been used to teach the fruit growers the proper and precise method of making the liquid Bordeaux mixture, that bulletin after bulletin has been published by the United States Agricultural Department, as well as the various state experimental colleges, bearing directly on the best methods of fighting insects and fungi, giving every minute detail that was essential to success; and that not a single bulletin or line of direction that our scientific men and colleges would vouch for has ever as yet been published as to dust spraying, all the data obtainable for guidance in the premises coming from the practical fruit growers in their orchards, both as to methods and formulae, the record is astounding. By crude methods and, at first, crude appliances, the practical growers demonstrated the superiority, simplicity and effectiveness of the lime conveyor. It is well that

Cyclone sprayer using nature's conveyer—the wind.

the maiden introduction of the system rests on such a solid foundation. The results obtained in the orchard by the practical grower are never questioned, they are taken as sure indexes to better results and better methods when toned down by experience and practice.

To those of the practical fruit growers who have used the system the longest, and endeavored by experience to perfect the process, its many advantages over the water conveyor are well known and may be summed up briefly, as follows:

Firstly, its simplicity.

In dry forms the arsenics are easily and readily mixed with the lime, the amalgamation is perfect, no settling, and the lowest grade of help can apply them to the trees without danger to the foliage. When the formulae are mixed, muscular strength is the only requisite for successful application.

Secondly, its low cost, ease and rapidity of application.

One man can do work equal to three men using the liquid conveyor; a dust machine weighing only 100 pounds is equal to a four-horse water outfit in working capacity.

In the old system, blue stone, or sulphate of copper, alone, is the insecticide. These arsenates are conveyed to the tree or plant by water. The conveyor has no virtue either as a fungicide or an insecticide—it simply carries the potent elements of the formula to the tree and is not only useless, expensive and unpleasant to handle, but also introduces the element of danger and uncertainty by causing the burning of the foliage and rusting of the fruit. In the use of water as a conveyor the grower is always handicapped by the character of the foliage he is treating and must vary the strength of the arsenics to suit it; hence the limitation of the remedial agencies, no matter how virulent the attack may be, either of insects or fungus. This principle is at variance with the rational and natural treatment of disease, either in plant or human life. In addition to this, in making the Bordeaux mixture chemical changes immediately take place, and various insoluble compounds are formed that destroy the positive action of the sulphate of copper, rendering the compounding of the mixture so intricate that even the highest grade of professional skill cannot always produce the same results. A fungicide formula that requires such nicety and exactness in compounding, where only a single potential remedy can be used, is not well adapted to the wants of the fruit grower who is compelled to compound it, and must of necessity give unsatisfactory and varying results. What is needed by the fruit grower is a simple fungicide formula that will give the standard fungicide, Paris green or some substitute is the standard direct and positive action of every element in it, without chance of error or mistake, and one that can be applied of any strength desired, to all kinds of foliage and under any conditions that may arise.

We believe that the simple change of the conveyor from water to lime dust in our present formula will accomplish this, and we respectfully but earnestly call the attention of scientists and all others to the record this simple change has made while yet in a crude state of development, unaided by science, in proof of the faith that is in us.

By the simple change of the conveyor, we discard a useless, expensive and dangerous element for one that is potent, cheap and easily applied; by the change, we add another good fungicide and insecticide to the formula used alone; our conveyor, lime, is a sure remedy for leaf curl and other fungous diseases as well as some classes of insects. In fact, as we progress with our work, we are inclined more and more to give a great deal of credit to the free use of lime dust to our trees, fruits, plants, vines and vegetables.

By the change of conveyor, it enables us to add other good elements to the formula, notably sulphur and tobacco dust, which cannot be used in the wet process. On citrus fruits, lime and sulphur have proven to be a sovereign remedy for red spider and rust mite. Large orange orchards in Florida and southern California treated by the above simple formula are entirely free from rust, every orange being bright, and many of them fancy. On a single orchard of 100 acres, the crop is worth $2,000 more than it would have been if treated by the old method. We have also succeeded the past season in combining sulphate of copper, in powdered form with our formula, holding the sulphate of copper in suspension indefinitely until applied to the tree and fruit, and as moisture is furnished by nature in the form of dew, gases of the air, etc., the Bordeaux mixture is formed on the tree and fruit, instead of in the compounding tank. Natural laws are thus brought to our aid, and nature never makes an error. We thus get the direct and positive action of the sulphate of copper, without any chemical changes until nature has supplied the moisture to slowly produce them, and finally the inert compounds are formed on the tree and fruit as in the compounding tank—*but not until the sulphate of copper has done its work.*

We thus have, by the simple change of a useless element in th old method, been able to add to other strong elements and secure the direct positive action of every element in the formula without any chemical or inert compounds. The dry fungicide formula then consists of lime, sulphur and sulphate of copper, three good elements, the action of each element positive and in unlimited quantity, as against blue stone alone limited in amount as in the old method.

By the use of lime dust as a conveyor, the danger of burning the foliage and rusting the fruit is entirely removed. We applied the same strength sulphate of copper and Paris green, the past season, to our apple trees, cherry trees, plum trees, pear trees, quince trees, grape vines, gooseberries, currants, strawberries, raspberries, vegetables and roses without injury to any of them in the slightest degree. The ratio of any element in the formula can be increased at pleasure with perfect safety to the foliage. The simple change of the conveyor enables us to apply the same rational mode of treatment of disease on human life to the treatment of disease on plant life, viz., suit the dose to the virulence of the disease. If the case is stubborn and well defined, use heroic doses of the antidote.

The discoloration of fruit in the latter stages of growth by the use of water as a conveyor is a serious and costly handicap to the fruit grower, entailing upon him, in many cases, heavy financial loss. Even after he has gone to the expense of protecting his crops, the profits in the season's crop slip away from him through premature dropping of fruit and the later attacks of insects and fungi. You know too well the amount of fruit you lose each year from these causes, and they occur after you are through spraying, as you term it. You know the remedy, but at this stage of growth, the risk you must take, both on foliage and fruit, as well as the expense and trouble of applying it, deter you from its use. The simple single change of the conveyor, from the wet to the dry form, will remove these conditions, and if intelligently applied will reduce the ratio of loss to a minimum. Not only this, but the foliage will be held on the tree by these later treatments in a healthy condition, thus insuring the setting of healthy fruit buds in abundance for the coming season.

It is even worse than a partial loss on grapes, and some of the stone fruits, such as peaches and plums; in many instances, it amounts to the loss of the entire crop. The grower knows the remedy for the rots, but he dare not apply it at this stage of growth —just before ripening. In our treatise, "All about Dust Spray," we publish the experience of Mr. Springer, a large peach grower of Pennsylvania, who states that when he saw small spots like pin heads on his peaches, he sprayed with the lime conveyor eight rows early and late alike the first time, and then twice afterward. He had 1,200 trees of the same variety that he did not spray, because it was his first season to use the dust spray, and he did not have confidence in it. The result was, that all his peaches in the eight rows which he sprayed, ripened and colored up most beautifully, and this, mind you, after the rot had appeared, while he lost his entire crop of the same varieties that were not sprayed, amounting to 2,000 bushels. In our own orchard, last season, we harvested a heavy crop of Triumph peaches, Japan and English varieties of plums free from rot, while the crops of our neighbors, who used the liquid spray or did not spray at all, were practically lost. The United States Government used the dry process last season on the peach crop in Georgia, in a comparative test. Mr. Scott, who conducted the experiments for the Government, informed us, that owing to the absence of rain in the locality in which he was conducting the experiments the rot did not develop, the first time they had been free from it in eleven years. He consequently did not get the data he desired, but stated that the dry process was the only one, in his opinion, by which the disease could be controlled.

Our own experience, as well as the universal testimony of all who use the dry conveyor, establish the following facts: The dry conveyor is rapidly and easily applied, one man doing as much work as three men with the wet conveyor; it removes the element of danger from burning the foliage, which is always present when the wet conveyor is used; dust sprayed trees yield from one-third to one-half more fruit than similar trees yield under the liquid treatment; fruit is larger and highly colored; all kinds of fruit treated with the dry conveyor hang to the trees, no dropping; as sure as the fruit sets, of whatever kind, it can be ripened and harvested, barring providential causes beyond our control. There is no loss from falling fruit in a dust sprayed orchard.

Mr. Wyman Elliot: If this subject of dust spraying has been improperly treated here I suppose I am responsible for it. When I was at St. Louis last summer I ran across Mr. Johnson, who wrote this paper, and I had a long talk with him about spraying, and after talking with him perhaps an hour or more I made up my mind that possibly it might be a good thing for him to prepare a paper setting forth his claim for points of value in his method and letting our people hear what he had to say. I went further than that. I bought a sprayer, and it is now down in the fruit room below on exhibition. You can examine it there and see what it is for yourselves. I have a few circulars, only a few, which I can spare, and if there has been any harm done by the presentation of this paper I want you to lay it to me.

The President: I believe there have been some questions asked in regard to spraying that might be answered at this time.

Prof. Washburn: In answer to Mr. Shepherd, who asked for information as to the comparative value of dust spraying and liquid spraying, I would like to say a word. We own a dust spraying machine at the station, and it throws a large quantity. They claim they are cheaper to manipulate than the liquid spraying machines. I have reason to doubt that statement. The best result is obtained in the morning when the dew is on the leaf. That is about the only feasible time to do the work, otherwise the first strong wind will blow it all away or will blow it off from one side of the trees. Another feature is that you have to be careful not to let that powder get to the horses. I do not believe that the dust spray is as effective for plant life as kerosene emulsion. It is not so effective and does not stay on as long. Mr. Johnson is a member of the firm that manufactures these machines and is very enthusiastic, of course.

Mr. Carbine (Ore.): Many of our orchards are located where there is no dew, and this dust will not stick where there is no dew, so I do not see that it would be of any value to us whatever. This question was discussed at our meeting last June at Portland, and a professor was there who stated it would not stick to the leaves unless there was dew, and that is something we do not have in eastern Oregon.

Prof. A. T. Erwin (Ia.): At the Iowa experiment station we have been giving some attention to dust and liquid spraying, and the opinion our way is that if we are dealing with some leaf-feeding insect, such as the cabbage worm or potato bug, the dust spray will give good results much cheaper, is just as effective and more easily applied. On the other hand, if you have fungous disease or codling moth it is not so effective. At my home in central Missouri the dust spray first came into use, and I have talked with many of the largest growers, and I know scarcely any of them that regard it as being equal to or better than the liquid spray. Sometimes it is the question of that or nothing. On rolling and steep land you cannot get at the trees with liquid spray, and on such land it is the only thing they can use. It is better than nothing. That is the consensus of opinion among the large growers.

Mr. Yahnke: When I was at St. Louis I met Mr. Johnson. He told me more than what was in the paper, but another gentleman whom I met at the same time talked better than Mr. Johnson. He said the result from dust spraying depended entirely on the preparation of the dust. He said there was scarcely one out of ten who had ever tried dust spraying that could make a good dust. That was the difficulty in using it, the using it right. For instance, it is not right to make a spray of Bordeaux by mixing the blue vitriol and the lime. First you have got to get the lime to dust, the lime has got to be slaked and then made into dust and the blue stone added, all powdered and dried in a dry kiln and then mixed. The only good results gained from using the dust were by using it right.

The President: Did he say where you could buy the dust in that form?

Mr. Yahnke: No, he did not, but I would prepare it myself I experimented a whole day to get a batch right. I make the dus and then buy the blue vitriol and dry it myself, and then mix it myself and apply it in that way. There are a good many orchards in our state that are so hilly that we cannot get at them with a liquid spray conveniently, and in such places a dust spray would be very convenient and very beneficial, provided we can do as good work with it as with a liquid spray.

Prof. Green: I never experimented much with dust spray, but this summer I carried on a considerable experiment to test the value of dust spray as compared with liquid spray in applying it to potato vines, and I got the best results from liquid spray. That experiment is in bulletin form and should be out the beginning of the year. It gives results of the treatment of potato vines for blight by applying Bordeaux mixture, and we have obtained most excellent results. For preventing the work of the potato bug I have had as good results with the dust spray as with anything I have ever used. We used air slaked lime and Paris green, and I like it better than anything I have ever used for potato bugs. I do not like gypsum. A cheap grade of flour is better yet.

Mr. Yahnke: Where do you get your lime?

Prof. Green: I always prepare it myself.

Mr. Yahnke: I believe that is where the mistake is made that the gentleman I referred to spoke of, we do not make good dust. He said he used the best lime obtainable and slaked it himself and was very careful not to burn it. I am speaking now of Bordeaux mixture. He said that was the principal reason why so many failed. I am only telling you now what the gentleman told me, I am not speaking of my own knowledge.

Mr. H. J. Baldwin: I wonder if any one has ever found trouble from Paris green poisoning the men who applied it. I had one man pretty nearly killed. He said the poisonous dust got into his system.

Prof. Washburn: If one gets a great deal of Paris green in the lungs it will do some injury.

Prof. Green: I was one of two boys who applied Paris green and lime on twenty acres of potatoes when I worked for Gregory, the seedsman. It was put on in dust form, and it did not hurt me, and it did not hurt the other fellow, and it seemed to me as though we were at it all summer. Anyway, I am still alive.

Prof. Washburn: It does good work with the potato bug. It kills the bug, but does not injure the vine. If you use arsenate of lead you will find it better than Paris green.

Prof. Green: The advantage with me has been that it was necessary to send out only one man to put it on. We had to send out two with the liquid spray. It is an advantage to take out a bag of flour and mix it yourself.

Mr. Yahnke: What proportion of flour do you use?

Prof. Green: About 1 lb. of Paris green to 35 lbs. of flour.

Prof. Washburn: I think you can use 1 lb. to 50 of flour.

Prof. Green: I use 1 lb. to 100 of air slaked lime.

Mr. C. W. Spickerman: How do you use it?

Prof. Green: With a bag of cheese cloth and a little box.

PROGRAM, ANNUAL MEETING,

MINNESOTA STATE HORTICULTURAL SOCIETY,

AT MINNEAPOLIS, MINN., DEC. 5-8, 1905.

The annual meeting is to be held in the audience room of the First Unitarian Church, located **on the corner** of Mary Place and 8th St. (midway between Nicollet and Hennepin avenues). The fruit **exhibit will** be located in the lecture room in the **basement** of the church, readily accessible **from the audience** room above. **There are also other rooms conveniently** situated to **be used as committee rooms, for** the meeting **of the Bee-Keepers' Association, etc.** There is also **a check room, where coats, etc., will be cared for. It is reached from the audience room by going part way down the front stairway leading to the fruit** exhibit room and turning to the left.

The special effort of the past two years **to get** out a large exhibit of long keeping **seedling** apples of merit is being continued, and the **amount** of premium offered for this purpose **remains at** $100.00. Competition in seedling apples **is open** to western Wisconsin, northern Iowa, **North and** South Dakota and Manitoba. This **ought to** bring out a large display of valuable seedlings, **as we are assured** that there are many of merit **that have not yet been shown.** Let each member **bring what he can and use** his influence to get **out all the good seedlings in** his neighborhood. **If** the growers of them cannot come to the meeting themselves and bring them along, have them sent to the secretary, directing to the place of meeting. **Consult** premium list on pages 15 and 16 of thisprogram.

A large meeting is assured. Delegates **from** all the horticultural societies near us **will be there** and a good sprinkling of visitors to **add to the interest.**

Don't forget the annual banquet, **which every member should certainly** attend.(See page 12 **of** the program.)

Will you be there? Reduced railway fares and low hotel rates make this an economical time for you and your friends and acquaintances to visit Minneapolis and attend the largest meeting this society has ever held. At least it should be such, as our membership was never so large, being now nearly 2,000.

Don't fail to bring the wife along! She should be a member of the Woman's Auxiliary and lend a hand at the gathering. We want 100 ladies at this meeting.

ALL MEETINGS WILL BEGIN PROMPTLY ON TIME.

A TEN MINUTE LIMIT.

On account of the fullness of the program and to allow plenty of time for discussion, those presenting topics are requested to limit themselves to ten minutes in their reading, or 1,000 words.

PROGRAM.

TUESDAY MORNING SESSION.

9:45 o'clock.

Every member attending should not fail to be in his seat promptly when this session opens

Opening song......Mr. Frank Drew, Minneapolis
Accompanied by Dr. Frank Moorhouse.
Invocation.......Rev. C. S. Harrison, York, Neb.

President's Annual Address,
Clarence Wedge, Albert Lea.

The president has some important recommendations in reference to seedling growing to make at this time, which every member should hear.

General Subject—Small Fruits.

1. The Farmer's Strawberry Bed,
M. R. Cashman, Owatonna.
2. Strawberry Culture in the Pine Regions of Minnesota.
H. G. Westman, Sandstone
3. The Commercial Raspberry Field,
Henry Haggard, Excelsior.
4. Blackberries and Other Fruits in the Suburban Garden,
George S. Grimes, Minneapolis.
5. Breeding Hardy Strawberries and Raspberries,
Prof. N. E. Hansen, Brookings, S. D.

Renew your membership and become a member by paying the Secretary $1.00.

All annual memberships expire on the first day of the annual meeting.

TUESDAY AFTERNOON SESSION.

1:30 o'clock.

Question Box and "Free Parliament Hour."
Led by A. K. Bush, Minneapolis.

2:00 o'clock.

Report of committee on credentials and reception of delegates.

Appointment of committees on award of premiums, president's address, obituaries and final resolutions.

General Subject—The Nurseryman and His Customer.

1. **The Advantage to the Minnesotan of Planting Home Grown Nursery Stock,**
W. L. Taylor, Howard Lake.
2. **Wintering Nursery Stock Delivered in the Fall.**
D. M. Mitchell, Owatonna.
3. **The Man Who Sells the Nursery Stock—from the Standpoint of His Employer,**
E. W. Reid, St Paul

"The Man Who Sells the Nursery Stock—from the Standpoint of the Buyer," will appear in the the banquet program Thursday evening.

4. **The Man Who Sells the Nursery stock—from His Own Standpoint,**
C. E. Snyder, Preston.
5. **The Legal Relations of the Nurseryman, His Agent and the Customer,**
W. M. Babcock, Attorney. Minneapolis.
6. **How to Pack Nursery Stock to Retain Customers,**
Ed. Bonde, Cottonwood.
7. **Rose Propagation in the Minnesota Nursery.**
John Nordine, Lake City.
8. **Native Ornamental Plants Valuable for Propagation.**
F. H. Nutter, Minneapolis
9. **Views in a Minnesota Nursery—Illustrated with lantern slides,**
Roy Underwood, Lake City.

You can become a life member by payment of $10.00 in two annual payments of $5.00 each if you prefer. This will entitle you to a file of our bound reports, a library in itself.

WEDNESDAY MORNING SESSION.

9:30 o'clock—Be Prompt.

Annual Reports.

Report of Secretary, A. W. Latham, Minneapolis.
Report of Treasurer, A. B. Lyman.... Excelsior
Report of Executive Board
Wyman Elliot, Minneapolis, Chairman

The Annual Reports here following will be filed for publication without reading, but each officer will be allotted two minutes when presenting his report in which to make oral statement as to features of special interest in connection with the substance of his report.

Reports of Vice-Presidents,
First Cong. Dist., Robert Parkhall, Chatfield.
Second Cong. Dist., Fred Mohl, Adrian.
Third Cong. Dist., J. F. Benjamin, Hutchinson.
Fourth Cong. Dist., W. J. Tingley, Withrow.
Fifth Cong. Dist., J. O. Weld, Mound.
Sixth Cong Dist., W. H. Eddy, Howard Lake.
Seventh Cong. Dist., G. A. Anderson, Renville.
Eighth Cong. Dist., F. M. McLeran, Wrenshall.
Ninth Cong. Dist., L. Johannessohn, Beltrami

Reports of Superintendents of Trial Stations.
Prof. S. B. Green, St. Anthony Park.
T. E. Cashman, Owatonna. Dewain Cook, Windom.
O. M. Lord, Minnesota City. A. B. Lyman, Excelsior.
F. I. Harris, La Crescent. L. R. Moyer, Montevideo.
Mrs. Jennie Stager, Sauk Rapids.
J. S. Parks, Pleasant Mounds.
F. J. Cowles, West Concord.
F. B. McLean, Wrenshall. A. H. Reed, Glencoe.

Reports of Local Societies,
Southern Minnesota Horticultural Society,
Red River Valley Horticultural Society,
Constance Horticultural Club,
McLeod County Horticultural Society,
Willmar Horticultural Society.
Meadow Vale, and others.

1. Blight in the Apple Orchard and How to Reduce it to a Minimum,
   Dewain Cook, Jeffers
2. My Success in Checking Blight,
   C. W. Spickerman, Excelsior.
3. Can Peaches Be Grown in Minnesota with Profit?
   A. D. Leach, Excelsior.

WEDNESDAY AFTERNOON SESSION.

1:30 o'clock.

Fruit List.

Report of Committee on Fruit List.
Prof. S. B. Green, St. Anthony Park.
J. P. Andrews, Faribault.
Thos. E. Cashman, Owatonna.

Adoption of Fruit List for 1906.

Ornamental List.

Report of Commitee on Ornamental List.
A. W. Hobart, Minneapolis.
C. M. Loring, Minneapolis.
LeRoy Cady, St. Anthony Park.

1. Chop Talk No. 4.
   Wyman Elliot, Minneapolis.
2. Lessons from Experience in Top Grafting.
   S. H. Kenney, Waterville.
3. The Relation of Stock and Scion.
   A. J. Philips, West Salem, Wis.

3:00 o'clock.

Woman's Auxilary —Joint Session

President's Greeting,
Miss Emma V. White, Mineapolis

Secretary's Report.
Mrs. Anna B. Underwood, Lake City.

Horticulture for the Schools,
Mrs. W. T. McMurran, St. Paul.

An Association as an Incentive to the Improvement of Home Grounds.
Mrs. Milton O. Nelson, Minneapolis.

The Evolution of Rose Culture.
O. F. G. Day, Minneapolis.

One Season's Work with Children and Flowers.
, Mrs. Anna B. Underwood, Lake City.

The Study Club and Its Advantages for Busy Women.
Mrs. E. M. La Penotierre, Minneapolis.

Annual fee for Woman's Auxilary, 25 cents, but members of the State Horticultural Society become members upon application to the secretary without further expense.

THURSDAY MORNING SESSION.

9:30 o'clock.—Be Prompt.

Announce annual meeting Woman's Auxiliary at 10 o'clock—in the adjoining room.

Question Box and "Free Parliament Hour."
Led by T. T. Bacheller, of Minneapolis

10:00 o'clock.

CALENDAR PROGRAM FOR MAY and JUNE.

1. Small Fruits in May and June,
   E. A. Farmer, Minneapolis.
   Walter Yahnke, Winona.
2 The Apple Orchard in May and June,
   Nils Anderson, Lake City.
3. The Plum and Cherry Orchard in May and June,
   C. W. Merritt, Winona.
4. The Vegetable Garden in May and June,
   J. Vincent Bailey, Newport.
5. The Vineyard in May and June,
   A. A. Bost, Excelsior.
6. The Flower Garden in May and June,
   Mrs. F. H. Gibbs, St. Anthony Park.

Winter Spraying in the Orchard and Nursery,
Prof. F. L. Washburn, St. Anthony Park.

Pointers in Prairie Orcharding,
M. J. DeWolf, Letcher, S. D.

Notice the Report on Seedling Fruits, the first thing this afternoon and get there on time. The session will begin on the minute.

Don't Forget the Question Box.

THURSDAY AFTERNOON SESSION.

1:30 o'clock.

Seedling Fruits.

Report of the Committee on Seedling Fruits.
Wyman Elliot, Chairman.
Prof. S. B. Green, St. Anthony Park.
O. M. Lord, Minnesota City.

Report of Committee on Awards on Seedling Apples, with display of those sorts receiving highest awards by the chairman of the committee.

Report of Committee on President's Address.

Horticultural Tidbits—Gleanings on the Pacific Coast.
Clarence Wedge, Albert Lea.

2:45 o'clock.

Annual Election of Officers.

3·00 o'clock.

Minnesota State Forestry Association—Joint Session.

President's Annual Greeting.
Charles M. Loring, Minneapolis

1. The National Forestry Congress and Minnesota's Forest Reserve—Illustrated with cartoons.
   Miss Lydia Phillips Williams,
   Secretary Minnesota Forestry Association, Minneapolis.
2. Conditions on the Cass Lake Reservation as I Found Them.
   Mrs. J. B. Hudson, Lake City.
3. Prairie Forestation.
   Lycurgus R. Moyer, Montevideo.
4. Address by Geo. H. Maxwell, Chairman Executive Committee National Irrigation Association, Chicago.
5. The Economic Value of Shade Trees. Illustrated with lantern slides.
   Chas. M. Loring, Minneapolis.

Business session and annual election of officers of Forestry Association.

THURSDAY EVENING.

6:30 o'clock.

Annual Society Banquet

"SUP WITH US."

A good substantial dinner, with some wit and wisdom to follow – a good opportunity to get to know one another.

The banquet will be held in the Young Woman's Christian Association building No. 87 So. Seventh Street. Those attending will go in a body direct from the adjournment of the Thursday afternoon session.

Tickets can be procured of the secretary at 75 cents each.

DON'T MISS IT.

Secure a new member in 1906, and receive one of the valuable and practical works on Horticulture given by the society as a premium. For list see "Society Folder."

MEMBERSHIP IN 1905:

1819 Annual Members. . 147 Life Members.

Total Membership, 1966.

FRIDAY MORNING SESSION.

9:30 o'clock—Be prompt.

Question Box and "Free Parliament Hour."
Led by Mr. Frank Yahnke, Winona

10:00 o'clock.

General Subject—Storing and Marketing the Product of Orchard and Garden.

1. The Use and Abuse of the Home Market by the Fruit Grower.
   R. A. Wright, Excelsior.
2. The Marketing of Apples—from the Standpoint of the Grower.
   E. A. Smith, Lake City.
3. Gathering and Marketing Minnesota Fruits—from the Standpoint of the Commission Merchant.
   Geo. E. Bryant, Minneapolis.
4. Advantages to Grower and Dealer in a Fruit Grower's Association.
   G. H. Booth, Lake City.
   Manager Excelsior Fruit Growers' Association.
5. Cooperation in Selling Fruit,
   H. B. Hotchkiss, Eau Claire, Wisconsin
6. Cellar Storage of Orchard Fruits,
   H. W. Sherman, Excelsior.
7. The General Storage of Orchard Fruits,
   J. C. Blair, Urbana, Ill.,
   Professor of Horticulture, Illinois State Experiment Station.
8. The Fruit Growers' Cold Storage Plant.,
   Madison Cooper, Watertown, N. Y.

ONE THOUSAND DOLLARS.

Is offered as a Premium by this Society for

A Seedling Apple

"As hardy and prolific as the Duchess," with fruit equal to "the Wealthy in size, quality and appearance, and that will keep as well as the Malinda."

COMPETITION OPEN TO ALL.

For further particulars address the Secretary.

FRIDAY AFTERNOON SESSION.

1:30 o'clock.

That means 1:30 o'clock!

Seedling Session.

The Climax of the Annual Meeting.

1. Two Hours with Luther Burbank—His Work as an Originator of New Fruits and its Application to Minnesota Needs.
   Prof. N. E. Hanson,
2. The Flowers of Fruits and Their Cross Pollination. A thirty minute illustrated class room exercise with Prof. Saml. B. Green as teacher and the society as class.
3. A Season's Experience in Cross-Pollination.
   W. A. Peterson, St. Anthony Park.
4. Growing New Varieties of Plums.
   Chas. F. Gardner, Osage, Ia.
5. Growing Seedling Plums For Definite Results,
   E. P. Standsten,
   Professor of Horticulture, Wisconsin State Experiment Station, Madison, Wisconsin.
6. The Seedling Apple Orchard, its Inception, Treatment and Uses.
   J. M. Underwood, Lake City.

Report of committee on obituaries and final resolutions.

4:00 p. m.

Two-minute speeches by members.

Closing song by Mr. Raymond R. Moorhouse. Accompanied by Dr. Frank E. Moorhouse, Minneapolis.

4:30 p. m.

Closing Remarks by the President. Adjournment.

OUR STANDARD FOR 1906.

2500 MEMBERS!

Will you send us one of these?

PREMIUM LIST.

All exhibits must be entered with the secretary and in place by noon of the first day of the meeting to be entitled to compete for premiums.

Exhibitors competing must be members of this society and growers of the articles exhibited.

The rules governing the horticultural department of the Minnesota State Fair will be applied except where they conflict with this list.

Note specially—Decayed or otherwise imperfect specimens of fruit should not be exhibited. They will not only not be considered in establishing the comparative value of the display, but their presence will detract from the standing of the exhibit.

FLOWERS.

	1st	2d
Collection of ornamental and flowering plants	$5.00	$3.00
Table bouquet	2.00	1.00

GRAPES.

	1st. Prem.	2d. Prem.	3d. Prem.
Collection	$5.00	$4.00	$3.00

APPLES.

Collection, not to exceed 10 varieties	$6.00	$4.00	$2.00
Each variety of apples included in the 1905 fruit list of the society, or in the 1905 premium list of the Minnesota State Fair (kept in cold storage)	.50	.25	....
Each variety of apples (or crabs) included in the 1905 fruit list of this society, or the 1905 premium list of the Minnesota State Fair (not kept in cold storage)	.50	.25	.....

N. B. For first premiums of the following see Special Premium Offers on next page.

Peck of Weathy apples, the fruit exhibited to be at the disposal of the meeting		$3.00	$2.00
Peck of Patten's Greening (same conditions as for peck of Wealthy)		3.00	2.00
Peck of Northwestern Greening (same conditions as for peck of Wealthy)		3.00	2.00

PREMIUM LIST—Continued.

SEEDLING APPLES.

Competition in seedling apples is open also to the western half of Wisconsin, the northern third of Iowa, and all of North Dakota, South Dakota and Manitoba.

EARLY WINTER SEEDLING.—The fruit shown must not have been kept in cold storage. A specimen of wood three years old (at least six inches long) taken from the tree bearing the apples shown, and a concise history and description of the tree and its fruits, must accompany each entry.

Competition is open to all except on such varieties as are being propagated for sale by some person other than the originator.

Premiums will be divided pro rata among all entries commended by the judges according to the comparative merit of each as a commercial fruit. Premium $40.00.

LATE WINTER SEEDLINGS—Same conditions as for early winter seedling except that if found necessary the fruit shown may be retained and final decision reserved till later in the winter. Premium $60.00.

SPECIAL PREMIUM OFFERS.

Best peck of Wealthy apples, $15.00 worth of nursery stock, exhibitor's selection from regular retail list.

Best peck of Patten's Greening apples, $15.00 worth of Nursery stock, exhibitor's selection from regular retail list.

The above two premiums are offered by the Clinton Falls Nursery Co., Owatonna.

Best peck of Northwestern Greening apples, twenty-five apple trees, 3 years, exhibitor's selection. Offered by Andrews Nursery Company, Faribault.

Best plate of Wealthy apples not kept in cold storage, twelve shrubs, 2-3-ft, Spirea Van Houttii or Tartarian Honeysuckle. Offered by W. E. Fryer, Mantorville.

Best early winter seedling apple not heretofore awarded a prize by this society, fifty Hibernal apple trees, 3 years, 5-6 feet.

Best late winter seedling apple not heretofore awarded a prize by this society, fifty Hibernal apple trees, 3 years, 5-6 feet.

The above two premiums are offered by the Jewell Nursery Company, of Lake City.

Secretary's Corner.

MEMBERSHIP RENEWAL BLANK.—In this blank form, sent to each of the members for 1905, through a typographical error it says: "I enclose $1.00 in payment of the annual fee for 1905." Of course it should say "for 1906," the fee for 1905 having been paid a year ago. Members expecting to attend the annual meeting are requested to remit in advance by mail instead of waiting to pay the secretary in person at the meeting, where there is always a press of work on the part of that officer.

PRESIDENT'S ADDRESS AT THE ANNUAL MEETING.—The President,s annual address, which is the first item on the program of the Tuesday morning session of the annual meeting, should be listened to by every member of the society at all interested in the pomological development of the state. This would be true at any annual meeting, but especially so in this case, as President Wedge has a proposition of special importance, bearing upon the origination of new varieties of fruits, to present at that time, which should receive most thoughtful consideration. Do not fail to be with us at that hour.

BRING THE YOUNG MEN ALONG.—Many of our members who are most regular in attendance at our annual meetings have sons whom they are especially desirous should follow in their footsteps and carry over into the next generation their interest in horticulture. It is occasionally the case that such a one is thoughtful enough to bring the young man to our meetings, but instances of this are quite rare. To create such an interest as is needed to keep the young man on the place and carry forward the work of his father, there is no better way than to bring him to these gatherings. The enthusiasm generated there is sure to be strongly felt and will have a permanent after effect. At least two fathers, to my knowledge, are planning to bring sons to this meeting There should be a hundred such. Make this occasion an outing and while you bring your wife, as she has a right to expect, do not forget to bring the young man also.

QUESTION BOX.—A neat box was made some years since for use at the annual meeting, the words "Question Box" being painted thereon. It has been so far little used. Perhaps the questions that crowd upon us are being answered fast enough at our meetings without the use of the box. If you think otherwise and would like specific information on any particular point, write such questions on a slip and drop into the box at the annual meeting.

WHO KNOWS ABOUT THE "GOULD CRAB?"—The crab referred to was disseminated originally, we are told, by a Mr. Gould who had a nursery about thirty years ago at Beaver Dam, Wis. In at least one case this crab has proved to be of especial value for topworking purposes, and Mr. S. H. Kenney will tell us about this instance at the annual meeting. Who knows anything about this crab as to characteristics, origin, etc ? Information wanted.

DELEGATES TO OUR ANNUAL MEETING—Have been selected by the most of the state horticultural societies about us. The Wisconsin society is sending Prof. E. P. Sandsten, of the Wisconsin State Experiment Station; the Iowa state society, Prof. Beach, of the Iowa Experiment Station; the Northeastern Iowa society, our old friend and life member, Chas. F. Gardner, of Osage, Iowa; the South Dakota society, their president, M. J. DeWolf, of Letcher, S. D·; and as representative of the Manitoba society we shall have with us Hon. Wm. G. Scott, of Winnipeg. With two exceptions all of these names are to be found on the program of the annual meeting.

PROF. J. C. BLAIR ON "COLD STORAGE."—Prof. J. C. Blair, the horticulturist at the Illinois Experiment Station, is to be with us at the annual meeting and present the subject of "Cold Storage," especially as applicable to the keeping of orchard fruits. We had the pleasure of hearing Prof. Blair on this subject at a Wisconsin meeting some years since and was much impressed with his intelligent comprehension of the subject. Prof. Blair has been continuing his investigations and has added much to his knowledge of the subject since that time. This is one of the topics that our members interested in orcharding should not fail to hear.

DELEGATE TO NORTHEASTERN IOWA SOCIETY.—Our society will be represented at the annual meeting of the Northeastern Iowa society by Mr. Christ Berthelsen, of Albert Lea, and a report from him of this meeting, which convenes in Hampton, Iowa, December 20, 21, may be expected in the January number of our monthly.

"FREE PARLIAMENT."—Our members will notice in the program of the annual meeting, now in your hands, at several points the words "Free Parliament." The title quite plainly indicates the use of spaces of time allotted to this, but for fear any of our members should be mislead it is well to say, in a general way, that this "free parliament" is to give opportunity for any member to express any opinion or make any statement he may desire to about any horticultural matter pertinent to the work of the society. This is a new departure in our program, and we hope it may prove to be an interesting and valuable one.

BRING YOUR PROGRAM TO THE ANNUAL MEETING.—While a large number, several thousand of these programs, are printed, yet sometimes they have run short before the meeting is over. Please bring with you the copy sent you by mail. You will need it to look over on the way perhaps, and will find it quite convenient to have.

REDUCED RATES TO THE TWIN CITIES —The meeting of the horticultural society commencing Wednesday, December 5, and closing Friday, December 8, will give opportunity to any one to take advantage of the reduced railroad rates, of full fare coming to the Twin Cities and returning at one-third fare. Many may wish to visit Minneapolis or St. Paul at that time, and this rate is not confined to members of the horticultural society but may be had by any one attending. To secure it, however, it will be necessary for each holder of a certificate to hand it to the secretary at the meeting beforehand and to be there again December 8 and have the certificate countersigned. No other place or time will answer the purpose. It will be of no use whatever to bring the ticket to the office of the secretary. He can do nothing there to help you. Haven't you neighbors and friends who would like to come to the cities at that time? Please spread this information. Tickets will be good purchased any time from December 1 to 7, and good for return until December 12.

FRUIT FOR THE ANNUAL MEETING.—A considerable quantity of fruit has been placed in cold storage here for exhibition at the annual meeting. This fruit will all be delivered at the place of meeting the forenoon of the day previous to the meeting, and exhibitors are urged to be present on the afternoon of that day and set up their fruit, so that when the meeting opens undivided attention may be given to it instead of so much time, as occasionally happens, being spent in the fruit room during the hours of the opening session. A large exhibit of seedlings is looked for. Every member should certainly contribute something towards this fruit exhibit. It is in a large sense an index of the success of the work of the society.

COME TO THE ANNUAL MEETING—THIS MEANS YOU!—If you have been there before you won't need urging, and we shall surely see you. If you have never attended, by all means make this your opportunity and see what a feast is spread for you of the things you especially like. You have a right to a winter holiday and so have the other members of your family, as far as they can get away from home. Why shouldn't the dweller in the country enjoy a holiday in the city as well as those in the city go into the country? Don't fail to be with us when the meeting opens and stay to the end!

A CHAIR OF FORESTRY FOR THE MINNESOTA STATE UNIVERSITY.—A movement is on foot for the endowment for a Chair of Forestry in the University of Minnesota, and it is proposed to raise a fund of $50,000 for this purpose, which would give an annual income of $2,500 in its support. There is much to be said in favor of this movement, which has been inaguurated at this time probably on account of a similar effort to raise $150,000 for the endowment of a Chair of Forestry in Yale College The endowment of a Chair of Forestry here would undoubtedly result in a general improvement of forestry conditions in the state. There is a woeful lack of general information on this subject, which a forestry chair at the university would do much to overcome. The Minnesota University is especially well located for this purpose, as the pine forests just north of us are within easy reach of those who are receiving instruction in forestry, where practical application may be made of such instruction. The owners of pine lands themselves would receive large and special benefit from this.

SEMI-CENTENNIAL OF THE ILLINOIS STATE HORTICULTURAL SOCIETY.—This thriving society of a sister state, having organized in December, 1856, is preparing a suitable program for the coming annual meeting, which is to partake largely of the nature of a celebration of the close of its fiftieth year. The meeting will be held in Champaign, Ill., December 12-15. A number of papers from the older members will be devoted to the history of the society and biographies of its early members. As usual, however, the program will consist of vital topics of the present day, that are always crowding on the practical horticulturist for solution. Who from Minnesota will visit with the Illinois horticulturists at their coming annual meeting? The secretary would be glad to know of any with such purpose.

SOME VALUABLE NEWER VARIETIES.—Mr. J. A. Howard, of Hammond, in speaking of his apple crop this year refers to two new varieties as follows: "The Fosberg and Hutchins are two apples that should be better known. The Fosberg comes between the Duchess and Okabena, just when we need an apple to take the place of the Duchess. It is a seedling of the Duchess, looks like it, and will sell for it. It bears early and heavily and does not scab or blight and is as hardy as the Patten's Greening. The Hutchins is a larger apple, hardy, and keeps well. It does not blight."

A SUCCESSFUL MANITOBA ORCHARD.—Mr. A. P. Stephenson, of Nelson, Man., whom some of our members will recall as a delegate from the Manitoba society some years since, a successful nurseryman in that province, speaks in a recent letter of a very good apple crop at his place, "something more than sixty bushels being harvested, composed mostly of Blushed Calville, Anisette, Antonovka, Hibernal, Wealthy and Peerless.

IS THE NORTHWESTERN GREENING BEING PLANTED TOO MUCH?—In a recent letter from O. D. Ackerman of Wells, Minnesota, he states: "I have some Northwestern Greening apple trees which have been set out eight years, and they are dying. There seems to be no mark on them that I can see, and no blight to speak of. Out of forty trees one died this spring shortly after leafing out, and one in August, and now there are four more dying. The leaves seem to turn brown and keep turning more brown until they are completely dead, with no apparent cause I have about three hundred other varieties, and they all seem to be thrifty and healthy, no variety dying except the Northwestern."

This corresponds very closely to our experience with the Northwestern Greening at the Central Experiment Station. I am afraid that this variety is perhaps being planted too generally in some locations. Anyway, it is liable to go as Mr. Ackerman has described.—PROF. SAMUEL B. GREEN,

Mr. Andrew Wilfert, an apple grower of much experience, at Cleveland, Minn., says that the Northwestern Greening overbears in his section and dies subsequently apparently of weakness from this cause.—SECRETARY.

ROLLIN'S PIPPIN APPLE.—I received a short time ago some very good specimens of Rollin's Pippin apple from R. R. Livingston of Fairmont, Minn. This variety is of poor quality. It originated with I. W. Rollins in the vicinity of Viola, Minn., and was at one time quite popular with the nurserymen in that vicinity. It seems to be doing well in some portions of our state, as is evidenced by the following data in regard to Mr. Livingston's tree:

"The tree came into bearing at fourteen years of age. It is now a large tree, spreading over twenty-five feet, and this year it bore twenty-five bushels of apples It has been a good producer since it came into bearing."—PROF. S. B. GREEN.

PROGRAM OF THE ANNUAL MEETING.—The program of the annual meeting is found in this number and has also been sent out by mail to each member a day or two later than the usual time for issuing it, the delay being chargable to the printers' strike It made it necessary to have the program machine set, interfering considerably with its appearance. A comparison of the present program with that of last year, as far as appearance is concerned, is somewhat derogatory to the later one. We shall hope to get back to the old and better style another year.

MINNESOTA BEE-KEEPERS' ASSOCIATION.—In a previous number the Horticulturist announced that the bee-keepers would not meet with the horticultural society on account of the convening of the National Bee-Keepers' Association at Chicago at that time. The Chicago meeting has, it seems, been postponed, and the Minnesota bee-keepers' have decided to meet as usual with the horticultural society, but the decision comes too late to get their program printed in with ours. This is due notice, however, to the members of the Minnesota Bee-Keepers' Association that the usual helpful program will be prepared for Wednesday and Thursday, December 6 and 7.

JOURNAL OF

Annual Meeting,

Minnesota State Horticultural Society,

DECEMBER 6-9, 1904.

The meeting was called to order in the main auditorium of the First Unitarian Church, corner Ninth street and Mary Place, Minneapolis, at 9:30 o'clock, by the president, Clarence Wedge, of Albert Lea.

An organ prelude was rendered by Mr. E. A. Smith, of Lake City, after which Rev. G. L. Morrill, of the People's Church, Minneapolis, offered prayer and a selection of vocal music was happily rendered by Miss L. B. Wasserzieher, of Minneapolis.

The President: In accordance with the usual custom the president is expected at this time to deliver his annual address, and I will do so at this time.

The "President's Annual Address" was then delivered by Mr. Clarence Wedge, of Albert Lea. (See index.)

The President: I see we have with us the usual large number of visitors, and in conformity with our custom I will appoint a committee to pass upon the credentials of the delegates sent here by other societies. I will appoint as such committee Mr. A. Brackett, Excelsior; Mr. J. L. Teigland, Minneota; and C. W. Merritt, Homer.

The first number on our program we are delighted to find is assigned to one of these brethren from Nebraska, whom most of us know and to whom we shall be glad to listen; I refer to Rev. C. S. Harrison, of York, Nebraska.

Mr. C. S. Harrison: Mr. Chairman and Friends: I come before you today in a double capacity, first as a delegate from the Nebraska State Horticultural Society and again as a full fledged life member of the Minnesota State Horticultural Society. (Applause.) I do not come before you as an honorary member, but as fast as I could spare the money I sent $5.00 and followed it up with another $5.00, and now I am really and truly one of you. And I want to tell you this, if a man as old as I am, and living five hundred miles away, can pay $10.00 to become a life member of this society, you people living here ought to come tumbling over each other to become life members yourselves, even if you have to pay a premium of two or three dollars. (Laughter.) I will tell you the way I came to join this society. I am a member of the Massachusetts society, the wealthiest in the world, worth about $1,000,000, but with not so many members as this, and I thought that was a good society to which to belong. Then I came up here last year to visit your society. There is a kind of wonderful hypnotism about you, friends. You throw your spell about a man so that he becomes almost helpless. I then made up my mind that I would be one of you, and I did become one of you, and I am very glad of it. I am getting along in years. You celebrated my seventy-second birthday on Thanksgiving day, and I am very much obliged to you: I hope you had a good time. My friends at home honored me equally. Some men will bear watching, others will not. My friends thought I belonged to the former class, and so they "watched" me with a fine railroad watch, the finest and best that money could buy. (Exhibiting watch.) I was not sorry that I was seventy-two years old.

Now then, our honored president has outlined in a measure the great need of this society in a forward movement for home adornment. In a very short time there will be a publication issued by the Webb Publishing Company on the subject of "A Gold Mine in the Front Yard and How to Work it." That is the most important thing. The most important part of the farm has been neglected. The richest corner lies in the front yard or very near it. I am going to read you the second chapter of that publication, and I am not doing it for the sake of helping out Brother Webb, because he is able to take care of himself, but I am going to do it for your sake. So I will present this morning as my subject "Possibilities in Floriculture," and along this line of gold mining in the front yard I will tell you of a "Hunt for Gems."

Mr. C. S. Harrison of York, Neb., then read a paper entitled, "Possibilities in Floriculture." (See index.)

The President: The next number on our program should be of interest to all of us, since we are all interested in experiments, and Mr. Bacheller will tell us something about garden experiments..

Mr. T. T. Bacheller: You need have no fear that I shall follow the pace set by my predecessor. I just want to tell you of a little incident that will further associate Mr. Harrison's name in my memory. I sat in my house last Sunday afternoon watching the setting of the sun, and I do not know whether it was just a coincidence, but I almost immediately thought of Mr. Harrison. My family was present, and I said to them, "I want to read to you a little from Mr. Harrison's address of last year." I got the copy of the magazine containing his address and commenced to read. I came to the place where he painted a word picture of the setting of the sun. Just then I looked out of the window,—and as I am on the north side of the lake I could look across two and a half miles to the west,—and the sun was just about to set. The beauty of the colors I could not attempt to paint, but I think with his word painting Mr. Harrison could have done it. I said to my family, "I will stop right here, and I wonder if a painter could do justice to that scene." The sun was just dipping down behind the horizon, and it seemed as though there was a blue background behind it. Just then my oldest boy went up stairs to change his clothes to do his chores. Just then a rift opened up in the clouds about twice as wide as the apparent diameter of the sun, and it threw a pathway across the lake that looked like gold, and a path opened up right in front of me running across the lake to the sun. I ran to the foot of the stairs and said to my son, "Look out of the south chamber and see the sight of your life." I never expect to see such a sunset again. The bar of light shortened and then disappeared. I never shall forget that sunset. I wish you all could have seen it.

Mr. T. T. Bacheller, of Minneapolis, then read a paper on the subject of "Garden Experiments." (See index.)

Discussion.

The President: We now come to a feature that is becoming an annual custom, and that is the "chop talk" by Mr. Elliot. We always look forward to getting something good out of these talks.

Mr. Wyman Elliot: I have not had time to look over the paper since it came from the typewriter, and there may be some things in it that I do not want to say. When I started in to give these "chop talks" a few years ago I did not think our secretary was going to make it a regular operation.

The President: I claim the honor of having started these "chop talks."

Mr. Elliot: I have not had time to prepare this paper as it should have been prepared. It contains only a few scattered thoughts that I put down at random, and it will hardly do to follow such a paper as was read by Mr. Harrison.

Mr. Wyman Elliot then presented a paper entitled "Chop Talk No. 3." (See index.)

Discussion.

The President: I take pleasure in introducing to you Prof. A. T. Erwin from our sister state, Iowa, who will read a paper upon some problems in tree planting.

Prof. A. T. Erwin: (Introductory to paper.) I want to extend to you the greetings of the Iowa Horticultural Society. Many of your problems are like our own., and I feel deeply interested in the work you are doing. I remember two years ago at the meeting of the American Pomological Society, in Boston, the largest and best exhibit of seedling apples came from the Minnesota Horticultural Society. This fall when the exposition closed at St. Louis it was the general verdict that the best educational exhibit ever brought together was at the exposition, and this was especially the case in the exhibits of the horticultural departments of the different states, and I think it should be considered a compliment that the United States government came to your state to select a superintendent, Prof. S. B. Green, for its exhibit. I am pleased to be with you; I came early, and I expect to stay late.

Prof. A. T. Erwin then read a paper on the subject of "Some Problems in Prairie Tree Planting," Prof. Erwin being the horticulturist of the Iowa State Experiment Station. (See index.)

The President: Prof. Erwin seems to have covered the ground so well that there do not remain any questions to be asked. I will therefore call for the last paper on this morning's program by Mr.

McCulley upon ginseng culture, an industry that seems to be claiming the attention of a good many people at the present time.

Mr. Preston McCulley, of Maple Plain, presented a paper upon "Ginseng Cultivation." (See index.)

Discussion.

The President: It is now exactly 12 o'clock. I would like to make a reputation for promptness, and therefore we will adjourn at this time. Before we adjourn, however, I would like to call the attention of our visiting delegates to the committee on credentials. I would like to have you present your credentials to the committee so they may be passed upon and so that the society may become acquainted with you. I would also like to call the attention of the society to the afternoon session. The meeting begins promptly at 1:30, which gives us only an hour and a half for luncheon, but the "calendar" program this afternoon is one of the most interesting of our entire session. As near as I can discover I believe our secretary has prepared for us the most interesting program we have ever had. For that reason I wish you would all be here promptly at 1:30 this afternoon.

On motion of Mr. Taylor the meeting adjourned.

TUESDAY AFTERNOON SESSION.

The meeting was called to order by President Wedge promptly at 1:30 o'clock.

The President: Mr. Strand, who has the first number on the program this afternoon, is on time, but I am sorry he has not a larger audience to compensate him for his effort in preparing his paper. However, he has a larger audience than the president had when he delivered his address.

"The Apple Orchard in March and April," was the subject of the paper presented by Mr. Geo. W. Strand, of Taylor Falls. (See index.)

Discussion.

The President: We will now take up the next subject, which treats of the plum and the cherry orchard, and I think Mr. Cook is in a position to give us some valuable ideas.

Mr. Dewain Cook, of Jeffers, then read a paper treating of "The Plum and Cherry Orchard in March and April." (See index.)

Discussion.

The President: We will proceed with the next topic, which takes us to the small fruit garden in March and April, and I think Mr. Wright, to whom the topic is assigned, is fully capable of handling the subject.

Mr. R. A. Wright, of Excelsior, then presented a paper upon the topic of "The Small Fruit Garden in March and April." (See index.)

Discussion.

The President: We have taken about all the time that is allotted to this subject, and we will now take up another topic, and discuss the vegetable garden in March and April.

"The Vegetable Garden in March and April," was the topic of the paper presented by Mr. R. L. Bailiff, of Bloomington. (See index.)

Discussion.

The President: If there is no further discussion desired upon this topic we will take up the next, which is one that should appeal to us all, and which I am sure we shall listen to with pleasure, and that is the care of the flower garden and lawn in March and April, by Mrs. Hansen.

Mrs. A. S. Hanson, of Minneapolis, then read a paper upon "The Flower Garden and Lawn in March and April." (See index.)

Discussion.

The President: We have given considerable time to this calendar program, and the papers and discussion have been exceedingly interesting and profitable, but we must pass on and take up the balance of the program. The next topic is one of interest to many of us, and Prof. Washburn will give us some information in regard to the injury the plum curculio does to the apple.

Prof. F. L. Washburn, of St. Anthony Park, then read a paper on the subject of "The Plum Curculio a Foe to the Apple." (See index.)

Discussion.

Prof. Washburn exhibited an enlarged model of the plum curculio, and also an enlarged model of an apple showing the ravages committed by the curculio.

The committee on credentials then submitted a report showing the following gentlemen entitled to seats as delegates from state and auxiliary organizations: Rev. C. S. Harrison, York, Neb.; Prof. A. T. Erwin, Ames, Ia.; Prof. C. B. Waldron, Fargo, N. D.; W. S. Kincaid, Brookings, S. D.; Mr. Williams, Elk River, Minn.

On motion of Mr. Long the report of the committe was adopted.

The President: Now we have heard the report of the committee on credentials, and we are interested in getting acquainted with these visiting delegates, and we want them to come forward and show themselves. I will first ask the gentleman whom we have already heard, and with whom we feel very much acquainted, and who was a former resident of our state, Mr. C. S. Harrison, and who is representing the State Horticultural Society of Nebraska, to come forward and make himself known to those who do not know him.

Mr. C. S. Harrison (Neb.): Mr. Chairman and friends: The Nebraska Horticultural Society is doing a great deal of good work and is priding itself upon being a very progressive society. Our members talk apples, peaches and plums, and plums and apples and peaches, and they do not branch out as I would like to see them. We also have a Forest and Park Society, of which I have the honor of being president, and we are endeavoring to keep the good work moving. (Applause.)

The President: We are always very glad to hear words of good cheer from our sister societies. We have with us another delegate from an adjoining state from whom we would like to hear at this time, and I will call upon Prof. Erwin of Iowa.

Prof. A. T. Erwin (Ia.): I do not think it is worth while to interrupt the meeting this morning to make any extended remarks. I wish to say that as far as I have gone I have enjoyed the meeting very much, especially so the display of seedling fruits in the room below. That is something that we are interested in in Iowa, and we are going to profit by the experience of your society. We are all here to gain information from you, and I hope to carry back to our state an inspiraton from this meeting that will be productive of good results. Recently our society has organized a state park and forestry association, and we are now trying to do some work along those lines. So we are not confined altogether to pomology, but we are doing something on the decorative side. Our society is increasing in membership, the interest is increasing, and we are looking forward to great results. I extend to you the cordial greeting of Iowa horticulturists. (Applause.)

The President: We are very much pleased to have with us Prof. Erwin, and I believe this is the first time we have had the pleasure of meeting him in our society. We have another gentleman here whom we have often greeted and whom we are glad to see as often as he wishes to come, but on this occasion we take special pleasure in greeting him since he comes here in his official capacity as the representative of the North Dakota Horticultural Society. I will ask Prof. Waldron to come forward.

Prof. C. B. Waldron (N. D.): I have not much to say on this occasion, but rather more than I had last year. I made the promise at that time that with the assistance of this society we would try to organize a state society in North Dakota. A half dozen members of this society went to Fargo last winter, and in two hours we organized a society of 130 members, and we now have a membership of two hundred. It can be considered as the daughter of this society, and the Minnesota society should have full credit for the work done in extending its influence and encouraging and bringing about the organization of new societies. Our meeting for this year has been arranged for January 20, and is to be held in connection with the grain growers' convention, and during the meeting of that convention one day has been set apart for our use in which to discuss horticultural topics. We have made arrangements with the Great Northern Railroad heretofore to furnish free transportation to those who wished to go to Fargo at that time to help us with our program, and I can assure you that this courtesy will again be extended this year, and if any of you can make it convenient to come to Fargo at that time you will have your expenses paid. (Applause.)

Prof. Green: Can we all go and take our wives with us?

Prof. Waldron: Yes, you can all come. I am not in the habit of having a bluff called on me in that way. (Laughter.) We have a well organized society, and we are out for all that is good to the limit. (Laughter and applause.)

The President: We are certainly under obligations to Prof.

Waldron for the promise of this wholesale hospitality, and I wish we might all avail ourselves of it. We have also with us a delegate from South Dakota, Mr. W. S. Kincaid, from whom we would be pleased to hear a few remarks.

Mr. W. S. Kincaid (S. D.): I think Prof. Hansen should be called upon to respond in behalf of our state since he is better known to you than I am. I have been a member of your society for four or five years. I came here to listen and learn. I am also a member of the South Dakota society. I commenced planting about six years ago and have planted some three thousand trees. I have put out altogether about 4,100 trees, of which 3,000 are in bearing. Next year I intend to plant more. I will take no more time to talk, but will go to work and listen. Thank you. (Applause.)

The President: We are glad to hear these encouraging words from those engaged in horticulture all around us. We have a delegate also with us from within our own state, from an auxiliary society, from whom we would like to hear a few words, and I am going to call upon Mr. Williams.

Mr. Williams: Two years ago Mr. Keays, Elk River, came to our place and started a branch of this society. The first time we met we had a membership of twenty and this winter we have fifteen to twenty more, and I was sent down here to represent that little band of farmers. We are experimenting and growing strawberries, raspberries, plums, cherries and apples. On apple trees we are a little bit off. Perhaps Mr. Yahnke can tell us wherein we fail, but it seems we do not work it right . Our soil is somewhat sandy, and my belief is that it freezes too deep and the roots are killed out. That is what I lay our failure to. With strawberries we are having good success. We are planting the Warfield, Bederwood and Bubach. I had Warfield that measured four and one-half inches in circumference. The secretary asked me to tell you that we were trying to get along in our weak way as fast as we could, and asked me to have you send out to us this winter a good talker or lecturer to advise us how to carry forward this work and to teach us how to make a success of it. (Applause.)

The President: We have with us a gentleman from Oregon, not as a delegate from that state, but merely as a chance visitor, but whom we are very glad to welcome. I do not know whether he travels loaded, but if he will come up in front we shall soon find out whether he does or not.

Mr. Carbine (Ore.): My gun is not a large one and it is not very dangerous. I cannot officially represent the fruit growers of the northwest, but I am a member of that association, and I can also say that we have a very live and active organization, numbering among its membership some of the greatest apple cranks and owners of large fruit farms. We are also engaged in the growing of the smaller fruits discussed here this afternoon, particularly strawberries. The Hood River Valley is noted for producing 150 carloads of strawberries in a small area. We are studying the question in our country how to get the best results in the fruit business. We meet in our association and discuss the best methods of treating diseases and insect pests. We have to make a fight against the same kind of enemies that you have to make here, and sometimes we go away with not a very clear idea of how we shall proceed, and we often have to put into practice ideas and methods of our own. I do not feel like consuming any of your valuable time. I am sure I am very much pleased to have the privilege of being with you for a few moments today. I learned that you were in session, and I concluded to drop in for a little while on my way home from New York city. I had much pleasure in meeting Prof. Green in our valley last summer and in going out with him and looking at some of our orchards. He was kind enough to meet with our local fruit growers' assocation, and we were especially pleased to have him talk to us during the evening he spent there. I thank you for your kind attention. (Applause.)

The President: I wish to say to these visiting delegates and the visitors from other states and societies that we are more than pleased to have you with us, and we hope and urge you to take part in our program to the extent of a full and free discussion.

The President: We will now take up the regular program where we left off, and the next two topics have reference to spraying. I will first call upon Mr. Rowell, of Excelsior, for his experience.

The subject of the paper by Mr. H. H. S. Rowell, of Excelsior, is, "My Experience in Spraying the Orchard." (See index.)

Discussion.

Mr. Dewain Cook: We are under considerable obligations to Prof. Washburn for getting up his models and reading his paper, and I want to move a vote of thanks for what he has done for us in this direction.

The motion was duly seconded and, being put to a vote, prevailed unanimously.

The President: Perhaps it would be well to have the next paper immediately follow this one by Mr. Rowell, and as it is the concluding paper of the afternoon we can devote our time to the discussion of both of them. The last paper treats of dust spraying, and as the author is not here the paper will be read by Prof. Green.

A paper upon "Dust Spraying," by Mr. G. C. Johnson, of Kansas City, Mo., was then read by Prof. Green. (See index.)

Discussion.

The President: Before we proceed further I wish to announce the following committees:

Awards on seedling apples, Prof. S. B. Green; flowers, A. G. Long; grapes, R. L. Jewett; cold storage apples, J. P. Andrews; apples not in cold storage, Dewain Cook; pecks of apples, Chas. F. Gardner; collections of apples, A. J. Philips; obituary, O. F. Brand, J. R. Cummins and O. M. Lord; final resolutions, T. T. Bacheller, Preston McCulley and J. A. Howard; president's address, L. R. Moyer, A. A. Bost and W. S. Higbie.

On motion of Mr. Taylor the meeting adjourned.

WEDNESDAY MORNING SESSION.

The meeting was called to order by President Wedge at 9:30 A. M.

The regular program was immediately taken up with the presentation of the annual reports of the vice-presidents.

The "Report of the First Congressional District" was submitted by Mr. C. W. Merritt, of Homer. (See index.)

Discussion.

The President: We will next listen to a report from the second congressional district. I would like to suggest to you that we have rather a full program this morning, and we have need to hasten along rather more than we did yesterday. We like to have a reasonable amount of formality, especially for the benefit of our reporter, and in asking your questions or discussing any subject I would request you to rise, and if any strangers are with us we would be pleased to have you announce your names when rising to speak, so that the reporter may get the name to use in connection with the report of the meeting. (To all of which the reporter responded "Amen" all to himself.)

The "Report of the Second Congressional District" was then read by Mr. David Secor of Winnebago City. (See index.)

Discussion.

The President: Our next number will be presented by Capt. Reed, of the third district.

Capt. A. H. Reed then presented the "Report of the Third Congressional District." (See index.)

Mr. Arthur Brackett, on behalf of the committee on credentials, submitted a supplementary report, recognizing Mr. J. C. Ferris, of the Northeastern Iowa Horticultural Society, Hampton, Ia., and Mr. J. C. Hawkins, of Austin, representing the Southern Minnesota Horticultural Society, as accredited delegates from their respective organizations.

On motion of Mr. W. L. Taylor the report was unanimously adopted.

The President: I think we are very well acquainted with these gentlemen, and I will ask them to come up here on the platform and show us the light of their countenances. I will first ask Mr. Ferris to come forward and give us a word of greeting.

Mr. J. C. Ferris (Ia.): Gentlemen of the Minnesota Horticultural Society: It affords me a pleasure which I am scarcely able to express to stand before you, to greet you as a society and to meet some old friends among you. If there is a warm corner in my heart for anybody or anything, it is always warm for the old horticulturist, and no less for the young one, and I also find many old soldiers among the horticulturists who offered their services to their country, as I did in the great war of the Rebellion. I came up here to be enlightened, because I know whenever you have sent a light down to Iowa we have become enlightened. I am sorry that some of the lights that used to shine so brilliantly in your North Star state have gone out. Old Peter Gideon has honored us by his presence, the man who made Iowa an apple state by producing the Wealthy, The Wealthy has made Minnesota a famous horticultural state. The Wealthy has almost revolutionized orcharding in the northwest. You have reason to be proud of that apple and of old Peter Gideon, with whom it originated. But you have some lights shining here yet that have sometimes given us light, some of those eminent men you have sent down to us. We have here a "Brand" of horticulture that we have met several times, we have been blessed by the presence of the "Lord" several times, and your honored president we consider a firm "Wedge" in our horticultural family. I came here to listen and to report the proceedings. I thank you for the honor you do me by permitting me to stand before you and address you, and perhaps I shall from time to time have a word to say as we move along. I cannot always keep still, but I will try to restrain myself and not burden you with any lengthy discussion. Thank you, gentlemen. (Applause.)

The President: We are very glad to welcome Mr. Ferris and to know that he enjoys being with us. Now we would like to hear from Mr. J. C. Hawkins, representing the Southern Minnesota Horticultural Society, a word regarding the welfare of that society.

Mr. J. C. Hawkins: I believe, Mr. President, later along in the program I am to appear as representing our society, and at this time I will not take up your time. I have not been able to meet with you for several years past, much to my regret, and I feel this morning as though I were at home. I thank you for affording me the pleasure of appearing before you. (Applause.)

The President: As the representative of the fourth district is not present, we will take up the report of the fifth district, and I will call upon Mr. Wright.

Mr. R. A. Wright, of Excelsior, then submitted a "Report of the Fifth Congressional District." (See index.)
Discussion.

The President: We must hasten on with our program, although I am sorry to cut off the discussion. We will next hear from Mr. Taylor repesenting the sixth congressional district. Mr. Taylor submitted a "Report of the Sixth Congressional District." (See index.)
Discussion.

The President: We have given all the time we can spare to the discussion of this report, and as I understand the representatives from the eighth and ninth districts are not present, we shall close the reports of the vice-presidents with that of the seventh district.

Mr. D. T. Wheaton, of Morris, then submitted the "Report of the Seventh Congressional District." (See index.)

The President: I think it is due to the vice-presidents and to the society that we notice the great improvement in the reports of the vice-presidents. I think there is no department in our society that shows greater progress than these reports that have been submitted here by the vice-presidents, covering the various sections of the state. Many of those read here today have been models, and it is an evidence of the great-interest taken in horticulture by those who report the conditions from different parts of the state.

We come now to the annual reports of the executive committee and the secretary and treasurer, and as the others are not here I will call upon Mr. Lyman for his report.

The treasurer, Mr. A. B. Lyman, of Excelsior, then submitted his annual report. (See index.)

On motion of Mr. Yahnke the report was approved.

The secretary, A. W. Latham, then read his annual report. (See index.)

The President: We will now take up the reports of superintendents of trial stations, and as Mr. Cashman is first on the list I will call on him.

Mr. Thos. E. Cashman then presented the "Report of the Trial Station at Owatonna." (See index.)

The President: If there is no discussion on this report we will next hear from Mr. Cook.

Mr. Dewain Cook then submitted the "Report of Trial Station" located at Jeffers. (See index.)

Discussion.

The President: We will next hear from Mr. Lord who will report on the subject of plums and small fruits.

Mr. O. M. Lord, of Minnesota City, read a paper covering the "Report of the Trial Station" on his grounds. (See index.)

Discussion.

The President: We will next hear from Mr. Lyman, of Excelsior.

Mr. A. B. Lyman then submitted the "Report of the Trial Station at Excelsior." (See index.)

The President: There seems to be no discussion on this report, and we will proceed with the next one by Judge Moyer.

Judge L. R. Moyer presented the "Report of the Trial Station at Montevideo." (See index.)

Mrs. Stager is not here to report, and I will call upon Mr. Parks, and this I believe closes the list.

The "Report of the Trial Station at Amboy" was then read by Mr. J. S. Parks. (See index.)

Discussion.

On motion of Mr. Brackett the meeting adjourned.

WEDNESDAY AFTERNOON SESSION.

The meeting was called to order promptly at 1:30 o'clock by the president.

The President: The first thing on our program this afternoon is the consideration of the fruit list. The chairman of that committee, Prof. Green, is present, and I presume he is ready to report.

Prof. S. B. Green, chairman, then submitted the "Report of the Committee on Fruit List." (See index.)

Prof. Green: I will move the adoption of the report. (See index.)

Discussion.

The motion of Prof. Green to adopt the report of the committee on fruit list was then put to a vote and prevailed unanimously.

The President: I believe some one has asked for the report of the committee on the $1,000 premium apple. I will ask Prof. Green to report upon that matter.

Prof. Green then submitted a tabulated report of entries received for the "One Thousand Dollar Seedling Apple Tree." (See index.)

The President: I do not think it is necessary to take any formal action on this report, and we will let it stand as it is. We will now go back to this morning's program and take up a very interesting report, that in regard to a permanent home for the society, of which committee Mr. C. M. Loring is Chairman.

C. M. Loring: Mr. President, there is a very short report to make. I was in hopes that I might be able during the year to induce some one to give us a lot that we might make a start toward securing a permanent location. I have yet been unable to find a gentleman who has public spirit enough to do that, and yet I am not entirely discouraged, as I have talked with several gentlemen who are interested in the work of this society, and some of them if they only had the right location would be willing to donate a lot to us, but as yet I have not succeeded in having such a lot donated to us as would be available in regard to location. I wish I might present a better record in this matter.

The President: We are very much pleased to know that the idea is being pushed along.

On motion of Mr. Latham the report of the committee was accepted and the committee continued.

The President: We will now take up the report of the committee on ornamental list, of which committee Mr. Loring is also chairman.

Mr. C. M. Loring then submitted the "Report of the Committee on Ornamental list." (See index.)

Discussion.

The President: There is another important committee which we have entirely overlooked. I refer to the committee on packages and marketing. Mr. Wright is chairman of that committee, and I will ask him to present a report.

Mr. R. A. Wright: I overlooked that report altogether, and I have not been able to see the other members of the committee, therefore I have nothing new to offer along this line. I trust you will pardon me for the oversight.

Mr. Elliot: I would suggest that, if possible, Mr. Wright and his committee get together before adjournment and prepare some kind of a report. There is considerable agitation in regard to this matter of packages, and the society ought to give its expression upon the subject.

On motion of Mr. W. L. Taylor the committee was continued with authority to submit a report later during the session.

Prof. S. B. Green: I wish to offer the following resolution:

"Whereas, The Minnesota State Forestry Association has exerted great influence for good in advancing our forestry

> interest on the prairies and the cut-over timber lands of Minnesota, and
>
> "Whereas, The usefulness of said association has been much hampered by the failure of the legislature to make provision for its work for several years, and
>
> "Whereas, We believe the association is worthy of and should receive an annual appropriation from the state, therefore, be it
>
> "Resolved, by the Minnesota State Horticultural Society, in convention assembled, that it lend its earnest support in securing for the Minnesota Forestry Association an annual appropriation from the Minnesota state legislature at its annual 1905 session."

The legislature failed to make an appropriation for the forestry association, I think it was in 1899, and since that time the association has been without funds except those secured through membership fees. There is need for this state forestry association, and it ought to have a little support from the state, and I believe this society, which is doing work along similar lines and in connection with the forestry association should lend its support to obtain an appropriation from the state. I move you, Mr. Chairman, the adoption of this resolution.

The President: I am sure this motion does not require any discussion. We are all warm friends of the forestry association and realize the necessity of the action suggested.

The motion made by Prof. Green was duly seconded and, being put to a vote, the resolution was unanimously adopted.

The President. I see Mr. Elliot is present now, and if he is ready we will listen to the report of the executive committee.

Mr. Wyman Elliot, as chairman, then submitted the "Report of the Executive Committee" for the preceeding year. (See index.)

On motion of Mr. Taylor the report was unanimously adopted.

The President: I now wish to propose something to the society There is a good attendance here and I would like to know something about the favor with which certain varieties of fruit are received, and I am going to ask those who have had favorable or unfavorable experience with such fruit to rise when the variety is mentioned. (See index under title of "Vote on Fruits.")

WOMAN'S AUXILIARY.

The meeting of the Woman's Auxiliary was called to order at 3:30 o'clock by the president, Miss Emma V. White.

The first number on the program was the president's address, the reading of which, however, was waived by Miss White in order that Mrs. C. G. Higbee, of St. Paul, might have an opportunity of setting forth the need of a separate training school for girls in the state, which was done in a very strong and urgent plea. A number of ladies whose names appeared on the program being unavoidably

absent, the first number on the regular program was presented by Dr. Mary Whetstone, of Minneapolis, on the subject of "Fruit and Vegetables as a Food from the Hygienic Standpoint." (See index.)
Discussion.

The president then introduced Miss Margaret J. Evans, of Northfield, who addressed the audience upon the subject of "Hospitality in the Home." (See index.)
Discussion.

Mr. S. A. Stockwell: I am but a junior member of this society and I do not know that I ought to enter into its deliberations, but the matter presented by Mrs. Higbee appealed to me greatly, and in order that the women of Minnesota may have this matter put before the coming legislature in the most emphatic way I desire to introduce this resolution. I have learned by experience that petitions do not mean much to the average legislator. As a usual thing he reads a few names at the head of a petition and then throws it away. If the gentlemen of the legislature are made aware of the fact that this question has been endorsed by the Minnesota State Horticultural Society then it will mean something (Applause,) I wish to offer this resolution:

> "Resolved, That the Minnesota State Horticultural Society urges upon the attention of the incoming legislature the question of a separate industrial school for girls."

I move the adoption of the resolution.

The motion was duly seconded and, being put to a vote, prevailed unanimously.

Mrs. C. G. Higbee: As chairman of the committee on girls' industrial school I wish to tender this society my sincere thanks for their practical assistance this afternoon. I can scarcely express to you how deeply and how thoroughly I appreciate this resolution which was unanimously passed upon. I am going to ask that the resolution be placed in such a form that it can be brought to the attention of the legislature.

A paper by Mrs. G. F. Benson, of Lake City, was then read, entitled, "Description and Habits of the Blue Jay." (See index.)

THURSDAY MORNING SESSION.

The meeting was called to order at 9:30 o'clock by President Wedge.

The President: We will begin our program at once, and we have a program similar to the one we had the first afternoon, a "calendar program." The first paper will be read by Mr. J. P. Andrews, who will treat of "The Apple Orchard in September and October." (See index.)
Discussion.

On motion of Mr. Wyman Elliot it was decided to keep the Peter on the list by a vote of 58 to 3.

The President: Now that we have settled this important question, and we have spent a great deal of time upon it, we will proceed to the next topic, which treats of "The Plum and Cherry Orchard in September and October," by Mr. Frank Yahnke. (See index.)

Discussion.

The President: We must hasten on with our program, and we will pass to the next topic and consider "The Vineyard in September and October," by Mr. Gust. Johnson. (See index.)

Discussion.

The President: We come now to a very interesting portion of our program to a great many of us, especially the ladies, and that is the subject of the flower garden, which will be treated of by Mrs. Sawyer, of Excelsior.

Mrs. N. S. Sawyer, of Excelsior, then read a paper on the subject of "The Flower Garden and Lawn in September and October." (See index.)

Discussion.

The President: We will now take up the next topic, which is by Mr. Richardson and gives his experience with the plum pocket.

Mr. S. D. Richardson read a paper on the subject of "My Experience with the Plum Pocket." (See index.)

Discussion.

The President: We now come to the last subject of our morning's program, the subject of planting for the new home grounds, Mr. Thompson.

Mr. O. C. Thompson, of Farmington, then spoke at length on the subject of "Preparing the Grounds for the New Home."

The President: In deference to Mr. Brand, the chairman of the committee on necrology, who has requested permission to present his report at this time, we will now listen to that report.

The committee on obituary, Mr. O. F. Brand, chairman, then submitted its report. (See index.)

On motion of Mr. Wyman Elliot the report of the committee was unanimously adopted, the members standing.

THURSDAY AFTERNOON SESSION.

The meeting was called to order by the president promptly at 1:30 o'clock.

On motion of Mr. Latham, upon recommendation by the executive committee, Mr. Forest Henry was made an honorary life member of the society in recognition of his valuable services in increasing the membership and otherwise promoting the welfare of the society during his connection with the Farmers' Institute.

The President: We are going to have a full and a very interesting program this afternoon, and although there are not many present at the hour of opening we must nevertheless begin on time. The first number is a paper by Mr. Secor.

Mr. David Secor, of Winnebago City, then read a brief paper on

"Lessons of Observation and Experience in Horticulture." (See index.)

The President: This is a very useful topic and one we would like to discuss at this time, but in order to keep up with the program we must hasten along. We will here take up a subject that was passed yesterday, but in which we are all interested, and that is the report of our exhibit at the World's Fair. I will ask Mr. Latham to read his paper now.

Mr. A. W. Latham then read a paper describing the "Minnesota Fruit Exhibit at the World's Fair." (See index.)

Mr. Wyman Elliot: Mr. President and friends, I believe Mr. Latham recognizes the faithful service that was rendered at the World's Fair by the members, and also by some of those in charge, and I have a resolution here which I want to introduce and, perhaps speak about afterward:

> "Resolved, That in a large measure our great success in the award of medals has been attained through the very efficient and faithful attention given to the many minor details pertaining to the care and oversight of our fruit exhibit at the Louisana Purchase Expositon, and if such painstaking efforts are worthy of any recognition we believe the services rendered by Mr. Thomas Redpath in placing for exhibition the greater proportion of the Minnesota fruits on the tables and making the proper entries of the same should be recognized by our society by manifesting its appreciation and esteem in some suitable and substantial manner."

Now, Mr. President, I have been somewhat interested in Mr. Redpath for about twenty years, and perhaps there are none among us that know him as well as I do. He is one of the most faithful men I ever had in my employ. He worked for me seven years and then I was the means of placing him on his present place, when he got married, and he has been on the farm on which he now lives for thirteen years. Of course, I know something of what is in the man, but he is of such a diffident nature that I can hardly ever get him to come out and do anything, but I was the means of getting him connected with our horticultural society and our state fair, and he has been progressing from year to year, and year before last the commission thought best to send him to Buffalo to take care of the exhibit there. They found the services he had rendered there were so eminently satisfactory that the consequence was he was asked to go to St. Louis. Mr. Redpath has been at St. Louis since last April and put his time in constantly; he has hardly been away from the horticultural building long enough to see what was on the grounds. Now I believe you all agree with me that we should recognize such faithful service, and I have been around among the friends and they have been contributing liberally toward providing him with some token of our appreciation. Now, if there is any one here who feels he can contribute a half dollar, a dollar or two or three dollars I will receive it, and it will be applied in the proper way.

Mr. J. M. Underwood: I take pleasure in seconding all that has been said and done in recognition of what Mr. Thomas Redpath has done at St. Louis. I am familiar with the exact way in which he administered the work that devolved upon him He is the man who has "carried the message to Garcia." He is careful and diligent, he never made a mistake, and I am sure the man who has performed a serivce assigned to him as Mr. Redpath performed his task, deserves the utmost commendation. I feel that I am under personal obligation to Mr. Redpath for the way in which he did his work, and so I would speak for the Minnesota commission that had charge of the exhibits at the World's Fair, and I know I voice the sentiment of the commission when I say that he did splendid service there, and I hope you will appreciate everything that has been said by Mr. Elliot, and that there will be a general and a generous contribution toward supplying him with a substantial token of remembrance. He was very much pleased when I met him there last Wednesday or Thursday at the horticultural booth. He had a list of awards that had been given him on fruit that was exhibited. He had a large number of awards, much in excess of any other state, certainly when considered in connection with the amount of money that was expended in running their exhibits. I know the results have largely been due to the faithfulness and care which he gave to the work connected with the exhibit. I am heartily glad to be present to be able to acknowledge the value of his services in this way.

Mr. Frank Yahnke: I was down at St. Louis with Mr. Redpath for nearly two weeks, and I must say his success in putting that exhibit in shape was marvelous. He does his work well. He not only knows what to do, but he knows how to do it. That man worked almost day and night, he worked on Sunday and every day. Our exhibit was a good deal harder to take care of than that of Wisconsin or NewYork or those of some other states. They were not put in such an artistic manner, while ours was made very attractive on account of its novel arrangement, and for that reason it could not be covered as the others were. The exhibit was set off with many glass jars containing fruit, which gave it a very handsome appearance. Every apple or anything else that was put on the windmill exhibit was not put there by chance, but it was put there to get the best artistic effect. Our exhibit made a lasting impression upon every one who saw it, both the booth and the windmill exhibit, and the credit is almost entirely due to Mr. Redpath.

On motion of Prof. Green the resolution submitted by Mr. Elliot was unanimously adopted.

We will now have the pleasure of listening to Prof. Hays who will speak to us about the aims of the new breeders' organization.

Prof. W. M. Hays then set forth at length "The Aim and Methods of the American Breeders' Association." (See index.)

Mr. Elliot: I have been listening with a great deal of interest to Prof. Hays' talk along this line. Since I have taken up the matter of growing seedling plums and apples I can very readily see the need of just such an organization, and I think it is a good proposition for us to become associated with this plant breeders' association, and I would therefore move the adoption of the following resolution:

> "Resolved, That the Minnesota State Horticultural Society hereby accept the invitation of the American Breeders' Association to become identified with that organization, and that a contribution of $20 be made to its permanent investment fund."

The motion was duly seconded and, being put to a vote, prevailed unanimously.

The President: I think we can assure Prof. Hays that we have a deep interest in the work of the organization which he represents.

We now have with us another representative of the school in Prof. Harry Snyder, from whom we shall all be glad to hear.

Prof. Snyder: In order to utilize your time to the best advantage I have prepared a short paper, and that will give, if desired, an opportunity for discussion following the reading of the paper.

Prof. Snyder then read a paper on the subject of "Fertilizers for Horticultural Purposes." (See index.)

Discussion.

ELECTION OF OFFICERS.

The time for the election of officers having arrived, tellers were appointed and the election proceeded with the following result: (See index.)

Calls of "Speech," "Wedge."

President-elect Wedge: Fellow members, I appreciate your kindness toward me very deeply, indeed. I can say as I said when first elected to this office, that there is no position that I can think of that I would enjoy more or of which I would have a greater appreciation than the office to which you have again elected me, and in this connection I want to thank you for your very great patience with me. It is something new for me to preside at such meetings, and I have appreciated the forbearance and kindness you have shown me while holding the position of presiding officer of this society, and I hope to continue to merit your consideration in the future. (Applause.)

Capt. A. H. Reed: I wish to offer the following resolution:

> "Resolved,That the executive committee of this society be and is hereby authorized and instructed to establish a trial fruit station in each and every county in the state where a county horticultural society is organized as an auxiliary to the state society with at least twenty-five members."

I move the adoption of the resolution, Mr. President.

Mr. Elliot: I hardly understand the meaning of the resolution.

Capt. Reed: It is a move in the direction of making our society more effectual and increasing its membership, and it would be an incentive to organize county societies and in that way increase the membership of the state society.

Mr. Underwood: In what way is the executive committee to act in the matter? How can the executive committee establish an experiment station?

Mr. Elliot: Capt. Reed, I think, means trial station. It is through the office of the executive committee that trial stations are established. It is first presented to the executive board, and they in turn bring the matter before the society, and the society votes upon the measure. I suppose this is only a recommendation along that line.

Mr. Yahnke: I think we have got about the same idea, but I would like to have it changed in this way, that the board has not got to ask the society first. At present if we want to establish a trial station we have to bring the matter before the society. In this way the board could act. That is all the difference. I want to have that understood by every one before the resolution is voted upon, whether they want to give the power to the board or leave it in the hands of the society.

The Secretary: The members of the board who have done the executive work know the difficulties attendant upon the establishment of trials stations. Such a matter ought to be carefully considered. A resolution leaving it to the discretion of the board would seem the proper thing to present.

Capt. Reed: I think when you find a county has taken the matter in hand and organized a society of at least twenty-five members, then you can select your man who is willing tc work for nothing for the sake of having a trial station and to get in communication with the state society and the state farm where he may get free plants to start his work with.

The President: I would like to say for the information of the society, and particularly for Capt. Reed's benefit, that, if my memory serves me right, the executive committee has never refused a trial station to any community or locality desiring it, and I think inasmuch as it has been the case in the past we hardly need to anticipate any trouble in regard to the question in the future, where there is any need of establishing a trial station.

Prof. Green: The time is now fifteen minutes past the hour when the Forestry Association was to take up its work. I will give up the reading of my paper in order to let the Forestry Association have the time, and I move that the Forestry Association be now given the right of way and that the matter under consideration be taken up at a later time.

The motion was duly seconded, and being put to a vote, prevailed.

MINNESOTA STATE FORESTRY ASSOCIATION, JOINT SESSION.

The meeting was called to order at 3:15 o'clock by the president, Mr. C. M. Loring.

The President: I am not going to make a formal address at this time, because we have a full program, nearly all of those who are to participate being present, and their papers will be much more interesting than my address, and so I will do as they do in congress, move that my address be printed. (See index.)

I was merely going to say that I regret that we have not been able to do more in the past year than was done, and yet I think the influence of the association was very good throughout the state. The formation of improvement associations, farmers' clubs and similar organizations throughout the state, and the improvements we have seen in farms and villages, is an evidence to me that the work of the association has been of great benefit to the state. Through lack of means we were not able to send out the literature we expected to send, and we are going to ask the legislature for a small appropriation to enable us to do this work. I believe we can get it, and a small amount will be of great benefit. I hope before the close of our session I may have an opportunity to say something about tree planting, both in villages and on the public roads. The matter came up in discussion yesterday, and some of the suggestions that were made at that time seemed so entirely out of place that I want to say a few words that I trust may be of help in the correct planting of trees.

We will now proceed with the program, and the first matter to be taken up is the report of the secretary-treasurer, Mr. Cox.

Mr. Wm. T. Cox, St. Anthony Park, then submitted the "Annual Report of the Secretary-Treasurer."

On motion of Mr. Elliot the report was adopted.

The President: We have with us this afternoon a gentleman who has addressed you before and from whom we are always glad to hear, and who will talk to us about the needs of forestry. I take pleasure in calling upon Gen. Andrews.

"What Minnesota needs in Forestry,"

Gen. C. C. Andrews, State Forest Fire Warden. (See index.)

The President: I knew we should hear something good from Gen. Andrews, and I do not think any one feels disappointed.

Mr. Wyman Elliot: I have a resolution to offer at this time:

> "Whereas, Minnesota has the oldest forestry association in the country, great natural forest advantages and should not fall behind any of her sister states in the forestry movement, therefore,
>
> "Resolved, by the Minnesota State Forestry Association in its annual meeting at Minneapolis, December 8, 1904, that we confidently rely on the friendly and public spirited interest of the legislature in measures for the advancement of forestry. That we hereby respectfully recommend that the legislature increase the appropriation for the prevention of forest fires to the end that the system may prove effective in case of general drought. Also, that reasonable appropriations be made to enable the State Forestry Board to plant the Pillsbury reserve in Cass county, to properly manage the 20,000 acres of forestry land in St. Louis county granted to the state by Congress, and to begin the work under the law enacted by the last legislature for purchasing and reforesting waste lands..

"We also recommend that the legislature make an annual appropriation of One Thousand Dollars for the Minnesota State Forestry Association."

Mr. R. G. Benjamin moved that the resolution be adopted.

A vote upon Mr. Benjamin's motion was then taken, and the resolution was unanimously adopted.

The President: We are fortunate in having with us this afternoon a lady who has been prominently identified with the forestry movement, and who is always ready to say a good word in its behalf. I have the pleasure of introducing Mrs. Williams, who will address us upon this subject of forestry.

"Forestry as Related to the Farm,"

Mrs. Lydia Phillips Williams, Minneapolis. (See index.)

The President: I am sure we all feel encouraged by this able address of Mrs. Williams. The next paper on the program is one by Mr. Fullerton, the state game warden.

A paper prepared by Mr. Samuel F. Fullerton, State Game Warden, entitled "Forestry and Game Protection," was then read by Prof. Green. (See index.)

Discussion.

The President: It is a very interesting paper, and the initial part of it brought out what few people in this northern country understand. The people of California say they live on oranges and other fruit. Very few people understand how many thousands of dollars are brought into the state, and how many thousands of dollars are brought into Hennepin county, by people who enjoy our beautiful lakes and the fine clear air, a place where they can get good fishing and hunting.

We will now listen to a paper that will probably interest a good many, a paper upon the subject of the pine weevil, by Prof Washburn.

Prof. F. L. Washburn then read a paper upon the subject of "The White Pine Weevil." (See index.)

Discussion.

The President: We have a full program and one good feature about it is that nearly all those on the program are present or have sent their papers, I believe all of them. I will call on Mr. Detwiler, of the United States Bureau of Forestry, who will read a paper.

"Federal Aid for Tree Planters," was the topic of a paper submitted by Mr. S. B. Detwiler, of the United States Bureau of Forestry. (See index.)

The President: We have with us a gentleman from whom we would like to hear a few remarks, Mr. Charles Christadoro, who has spread himself all over the state.

Mr. Chas. Christadoro, of Minnesota, then made a few remarks upon the general subject of forestry. (See index.)

Prof. Green: I have a matter which I wish to present to you, and I think I shall have to go somewhat in detail in regard to it.

This forestry association has been in existence in Minnesota for somewhere about thirty years, and it has accomplished a great work, it has done a wonderful work in the guidance of the planters of the prairie. It was largely instrumental in securing for the prairie planters that $20,000 a year. It has done a good deal of work in assisting the pioneer in getting proper forest legislation for the prevention and suppression of forest fires, and has also done good work in bringing about the formation of the present reserves in the United States. But a few years ago the legislature passed a bill which created a forest reserve board, which is appointed by the governor, and the appropriation was taken away from the forestry association and given to that forest reserve board. But the forest reserve board cannot do the work of a voluntary association. The forestry board is doing a good work, and it is amply justified in having secured the passage of the law, but it cannot do the work of the association. Now what some of us want to do is to infuse new life into this association, and we feel we must have a publication, that will be issued at least quarterly, that will reach our members. We feel in the matter of membership that if we pay our dollar we become members of the association, but we feel that the members ought to be put on the same basis as those of the horticultural society. Then I feel also that we ought to have in the position of secretary some one who can give a great deal of time and who is imbued with a feeling of enthusiasm for the work. That is not saying that I am disappointed with our present secretary, but he is overburdened with work. I presented his name myself last year, he is an admirable man for the place. But we can select the secretary better in the executive committee, so we propose to make a few changes in the constitution. We want to bring this Forestry Association into closer touch with other organizations that are interested in the forestry of the state. I would like to bring this association in touch with the Women's Federation of Clubs.

Prof. Green then submitted the following amendments to the constitution: (See index, Report of 1906.)

On motion of Prof. Green the amendments submitted were unanimously adopted.

Mr. J. M. Underwood: I have thought for a number of years that the Forestry Association and the State Horticultural society ought to be united. In the past for a number of years there were two organizations of a somewhat similar character, the American Park and Outdoor Art Association and the American Civic League. These two organizations were working along the same lines, and yet they were separate organizations. But when they met at St. Louis this past summer they came together, and they now have one loyal and reasonably strong society that will work for the good of the country. In this instance our interests are practically the same. I am a horticulturist, and when I hear a paper read on what kind of trees to plant by the roadside, I want to know why we cannot plant burr oaks. All of the features that interest us as foresters come out in our publication, and when we get our horticultural magazine let all those features that apply to forestry come in there. I would like to see this combination effected. I think the bringing together of these two societies would be a step in the right direction.

Gen. Andrews: The forestry association of Massachusetts has 700 members, and the membership consists of some of the most influential people in Boston. It has been very fortunate in securing favorable legislation. They have a forester in Masssachusetts who is paid a salary of $2,000 a year. Wisconsin has a forester who receives a salary of $2,500 a year, and other states have similar provisions. If we can get this organization on a better basis it would have a great influence on legislation that may be sought hereafter.

Mr. Latham: The forestry association has been practically an auxiliary body for some time; ever since it lost its appropriation it has been fostered by the horticultural society. The papers as well as the discussions that have been offered at the annual meetings have all been published in the Horticulturist. We have taken everything that the forestry association has given us and published it. Prof. Green's idea is now to publish in four numbers during the year considerable forestry material, and to indicate on the cover that the contents embrace some of the work of the forestry association. I hope this plan may go into effect.

Mr. Elliot: I want to say that I am glad after being divorced to some extent in our methods of procedure that we are coming back to the old love, and I welcome the change very heartily.

Mr. A. K. Bush: I believe those who have had experience and have been successful in fruit growing realize that forestry must go hand in hand with horticulture. Many have spent good money in buying fruit trees before they knew whether they were adapted to their soil and climate, and it was money thrown away. I believe the society can easily be reinstated if they show their need.

On motion of Prof. Green the meeting adjourned.

FRIDAY MORNING SESSION.

The meeting was called to order promptly at 9:30 o'clock by the president.

The President: We will at once take up the program of the morning which I know is going to be a very interesting one, and as the first two numbers are not present, I will call upon Mr. Howard.

Mr. J. A. Howard, of Hammond then read a paper on the subject of "My Apple Storage House." (See index.)

Discussion.

The President: This has been a very interesting and valuable discussion, but as we have a full program I think we have devoted all the time to it we can spare.

We will now take up another subject along this line of orchards, and Mr. Stone will tell us about his experience with his Duchess orchard.

Mr. Eli Stone, of Excelsior, then addressed the society upon the topic of "My Duchess Orchard." (See index.)

Discussion.

The President: This has been an exceedingly interesting and, I think, profitable discussion, but we have given it all the time we can possibly spare and must hurry on with our program. I note that Prof. Bull is now present, and I will call upon him for his paper, which ought to be of interest to many.

Prof. C. P. Bull, of St. Anthony Park, then read a paper on the subject of "Plant Breeding as a Practical Pursuit." (See index.)

Discussion.

The President: I understand the committee on president's address is now ready to report, and we will just interrupt the program for a few moments to hear that report.

Mr. E. A. Smith then submitted the report of the Committee on President's Address. (See index.)

On motion of Mr. Elliot the report was unanimously adopted.

The President: Now if you desire to discuss Prof. Bull's paper a little more we can spare a few minutes.

Mr. Loring: I would like to ask what quality is required in the plum. Last year I offered a premium of $25.00 for the best plum. It was not given out, the premium was not paid, and I was not called upon for it. I think the plum is a fruit very much neglected. We ought to have better plums than we have. I would be very glad to offer a premium of $100.00 for a plum that would be of a certain quality, and that is something that we should arrive at here. I am perfectly willing to offer a premium of 100.00 if some of the gentlemen who are familiar with plum culture will raise the standard high enough so we will get something that is good.

Mr. Underwood: I would suggest that we refer this question of Mr. Loring's to our venerable plum specialist, Mr. Lord.

The President: This is certainly a very generous proposition on the part of Mr. Loring, and it does seem as though we ought to go on and accomplish something in this line.

Mr. Underwood: It has been suggested that we have a committee appointed to consider this proposed standard for the plum, and as there are one or two other able specialists in the growing of plums, I think it is a good suggestion. As there has been no action taken I would make a motion that the matter be referred to a committee consisting of Mr. Lord, Mr. Elliot and Prof. Hansen. I think that would make a splendid committee, and I think with their wisdom and counsel we would get it about right.

Prof. Hansen: I am duly appreciative of the honor, but I think the committee ought to consist of Minnesota people. They ought to establish a standard, and I think Prof. Green should be the one to serve on that committee.

Mr. Elliot: I think Mr. Lord is abundantly qualified with his long experience to make this standard of excellence, and I don't think he needs any assistance, and if Mr. Cook were to be put on the committee I would be only a fifth wheel.

Prof. Hansen: I will withdraw in favor of Prof. Green because he knows more about the subject than I do.

Prof. Green: Oh, put on somebody else. There are lots of people here who know more about the plum than I do.

Mr. A. B. Lyman: As Prof. Hansen and Prof Green don't want to serve on that committee, I will move an amendment that Mr. Cook serve on that committee.

Mr. Cook: I don't want to go on that committee.

Secretary Latham: I have not heard all of this discussion, but I take it this is a premium Mr. Loring is going to hang up for a plum the quality of which is going to be good, and very likely the seed to grow this tree has not yet been planted. There is going to be a whole lot of testing necessary, and as this offer is made in connection with the horticultural society, as I understand it, in some way this matter ought to go through the hands of the executive board of the society. I simply through this out as a suggestion.

Prof. Green: I move that this whole matter be referred to the executive board with power to act. I offer this as a substitute motion.

The motion was duly seconded and, being put to a vote, prevailed unanimously.

The President: Prof. Hansen is also present now, and I will call upon him for his paper on the subject of fruit breeding.

Prof. N. S. Hansen, of Brookings, S. D., then spoke extemporaneously on "Notes on Fruit Breeding." (See index.)

The President: We have one other topic on the program this morning, and although it is nearly time for adjournment, I think we shall have time to hear from Mr. Sahler.

Mr. Emil Sahler, of Waseca, then gave a dissertation, with a practical exemplification, on the subject of "Gathering the Apple Crop." (See index.)

On motion of Mr. Yahnke the meeting adjourned.

FRIDAY AFTERNOON SESSION.

The meeting was called to order at 2 o'clock by President Wedge.

The President: We will at once proceed with our program, and the first number is by Mr. Teigland, who will speak about orchard conditions on the prairie.

"Starting an Orchard on a Minnesota Prairie," was the title of the paper presented by Mr. J. L. Teigland, of Minneota. (See index.)

The President: Our next subject treats of the successful making of an orchard, by a gentleman who is competent to speak on the topic, Mr. Smith, of Lake City.

Mr. E. A. Smith, of Lake City, then read a paper on the subject of "The Making of a Successful Orchard." (See index.)

Discussion.

The President: If there is no further discussion we will take a topic that we have passed, and Prof. Robertson will tell us why some apple trees do not bear. I see Prof. Robertson is down on the program as being from St. Anthony Park. It strikes me he is from Faribault county and a neighbor of mine. Isn't that where you are from, Professor?

Prof. Robertson: I don't know. (Laughter.)

Prof. Wm Robertson, then delivered an oral dissertation upon the topic of "Why Some Orchard Trees Do Not Bear."

Discussion.

The President: We must close this discussion, although it is very interesting. Mr. Lyman will now read a paper giving his experience with the Wealthy as a parent of seedlings. These plates of apples here (indicating apples on the table) were grown by Mr. Lyman and are seedlings of the Wealthy.

Mr. A. B. Lyman, of Excelsior, then read a paper on the topic of "The Wealthy as a Parent of Seedlings." (See index.)

Discussion.

Mr. E. A. Smith: After this splendid tribute to the Wealthy I would like to introduce a resolution. While I was at St. Louis I was greatly interested in looking through the pomological exhibit made by the United States Government. The fruits were either preserved in liquid or they were represented by wax models. I found most of the Wisconsin apples represented, including the Northwestern Greening, also the Okabena and others, and I found the Wealthy represented as coming from six states, but none from Minnesota. The following states had the Wealthy apple: Texas Nebraska, Idaho, Missouri, Wisconsin and Iowa, but not a specimen in all those exhibits was equal to the splendid specimens here exhibited. The Wealthy is essentially a product of Minnesota; it originated here, and this state ought to have proper credit at the Department for originating that apple, and this resolution is presented for the purpose of securing deserved recognition:

> "Resolved, That the secretary of the Minnesota Horticultural Society be authorized to correspond with the proper officials at Washington, in order to obtain information regarding the steps necessary to be taken in order to secure suitable recognition of the Wealthy apple in the pomological section of the United States Department of Agriculture as coming from the state of Minnesota, the place of its origin, and that the secretary be further instructed to comply with the conditions that may be imposed in order to secure said recognition, and that he report the result at the next annual meeting of the Horticultural society."

On motion of Mr. Smith the resolution presented by him was unanimously adopted.

The President: We still have several papers on the program, and we must hasten on. I will next call on Mr. Kenney, one of our old members, and especially old in experience, who will speak to us on the subject of pruning.

Mr. Seth H. Kenney, of Waterville, then read a paper on the subject of "Trimming the Orchard." (See index.)

Discussion.

The President: As Mr. Smith has suggested, we spent a good deal of time on this topic yesterday, and in the next paper on the question of winter care of trees we may find some more light. I will ask Mr. Wichler to read his paper.

Mr. J. V. Wichler, of Owatonna, then read a paper on the subject of "Winter Care of Fruit Trees." (See index.)

Discussion.

The President: I wish to announce that there will be some Wealthy apples passed about, and if there are any of you that are not familiar with the variety you might carry them home with you as souvenirs.

I might also say that the specimens before us show the curculio and the work it does upon the apple. We are all interested in the matter of spraying, and Prof. Washburn is about to issue a bulletin on the subject of spraying. The bulletins can be obtained by addressing Prof. Washburn at St. Anthony Park.

The President: This concludes our program of papers for this meeting, but we have the Question Box here which I will ask the secretary to open, and we will dispose of the questions it may contain.

The Question Box was then opened, and the questions assigned to various members to be answered. These questions and answers will be found scattered through the annual report.

The President: This seems to exhaust the list of questions and gives us a little time to take up any unfinished business that may come before the society.

Mr. Underwood: I wish to offer a resolution, and I am sorry I have not written it out, but the stenographer can put it in form so that it will appear in the proceedings. It is a resolution providing for a tax of one-fifth of a mill for the agricultural school.

The resolution submitted was as follows:

> "Resolved, that the Minnesota State Horticultural Society lend its unanimous endorsement in requesting the incoming legislature to pass an act providing for a tax of one-fifth of one mill for the use and maintenance of the State Agricultural College."

On motion of Mr. Underwood the resolution was unanimously adopted.

TWO MINUTE TALKS.

The President: I think this finishes all of our work for this meeting except the customary two minute speeches. This part of the program is one of the most enjoyable features of the meeting, but at the same time it is not unmixed with an element of sadness. We have all enjoyed ourselves here, we have had a pleasant and, I hope, a profitable meeting, and as we leave for our respective homes it is with the expectation on the part of most of us to return again next year, something that we look forward to with pleasure. But we realize that in all probability this circle will be broken when we again gather here; our older, faithful workers are laying down their burdens, and that is why I referred to there being an element of sadness in these closing exercises. However, let us hope that we may all meet again a year from this time and have the pleasure of greeting the same faces that are before us today. I do not know that it will be necessary to call upon every one to speak, but if I do we shall expect you to respond.

Mr. C. F. Gardner, Osage, Iowa: Mr. President and Ladies and Gentlemen of this Society: I have had a good time and heard some good things, but the chief feature which I have observed and which has afforded me the greatest pleasure is the appearance during the meeting of the intelligent, charming and beautiful ladies. (Applause.) Of the gentlemen members of this society, of the men in general I cannot say so much, but I can unreservedly and unqualifiedly say that the best looking man of all the men I have seen since I have been here is A. J. Philips, of Wisconsin. (Prolonged and vociferous applause.)

Prof. N. E. Hansen, Brookings, S. D.: In taking part in a meeting of this kind it is the enthusiasm that is engendered in coming together that makes it so successful. We come together here and have a rousing good time, and then we scatter all over the country bubbling over with enthusiasm which becomes contagious, and we look forward from year to year to this meeting with the greatest pleasure. When we want to get right down to digest the matters that come up here we can sit down and read our "Horticulturist" at our leisure, but here we come together for a good time.

Capt. A. H. Reed, Glencoe: I suppose I will have to get up and say a word or two. I want to say to you that I have enjoyed the meeting immensely and have learned something. I have learned for one thing that there is a difference between the Peter and the Wealthy apple, and I have also seen the best exhibition of fruit that has ever been made by the society.

Mr. A. J. Philips, West Salem, Wis.: I am at a loss to know just what to say. I really don't know whether to take Gardner's little speech as a compliment or whether he is making fun of me. If I tell my wife she will say at once that he was making fun of me. However, I will say that I have had a good time; I can always have a good time at these meetings without half trying. The first two days I was here I did not feel first rate. I do want to say something about Long's speech at the banquet last night. He is always prodding me to tell him some new stories, something funny, and last night he got a chance to work them off. I never thought he could do half as well as he did. I want to say that the thing that impressed me as being of the most value at this meeting was Mr. Underwood's talk this afternoon. I have talked at institutes, and while I have always urged young men to plant apple trees I have never advised any one to plant an orchard and make that his life work unless he could have water. Our trees will suffer, and it will be discouraging and up hill work unless we can have the necessary water. The farmer who lives by a lake or a stream can pump up his water and give his trees seven to eight barrels each fall, and his trees will go through the winter in good shape, and he will have a good crop of fruit. You can raise fruit all over the country if you can give it plenty of water. (Applause.)

Mr. J. M. Underwood: There has been so much said already that I don't think I had better occupy any more time. The feature that has afforded me the pleasantest impression is the splendid display of fruit we have had at our meeting. I think it might well be assumed that Minnesota takes the prize in that respect.

Rev. C. S. Harrison, York, Neb.: I cannot be funny like our friend Philips, or I would tell you a story, so all I desire to say is that the best thing I have seen is that magnificent display of fruit down below. I have attended the meeting of many horticultural societies, a great many of them, but one of the things that I admire most here is the way you defy Old Boreas in his efforts to hamper your work. When he comes with his frozen mercury riding on the north wind you simply meet the old fellow half way and whip him on his own ground, and I am glad of it. (Applause.)

Mr. Dewain Cook, Jeffers: I have attended these meetings for twelve or thirteen years, and it is always one of the most enjoyable trips I make. If we compare the exhibit that was made when I first knew the society with the present exhibit, we can scarcely realize the wonderful progress we have made. The first time I attended one of these meetings the chief impression I received was that our part of the state was too dry to raise apples, and when we think of what we are doing here now it shows the great progress we have made in the last few years.

Prof. Samuel B. Green, St. Anthony Park: One of the things that has pleased me most,—in fact, I have been pleased with this meeting all the way through, because I have so long enjoyed pleasant relations with the members and the cordial greetings of these old friends is worth a great deal to me—but one of the things of which I feel the proudest is the fact that we have now a membership of 1,800, and I feel that the greatest credit for that condition of things is due to our worthy secretary, and if you want to call upon anybody that is worthy to speak call upon our secretary, and if he speaks accord him generous applause. (Applause.)

Sec. A. W. Latham, Minneapolis: Prof. Green knew he could not talk so he thought he would get somebody else to make a good speech. We have got such a splendid membership behind the management, they are always so ready to pull hard and to pull all together that it is not necessary to call twice for help. The secretary does not do all these things, but he simply calls for some effort on the part of the members, and the credit for the progressive condition of this society should be accorded to its loyal membership. (Applause.)

Mr. W. L. Taylor, Howard Lake: I am glad we have such a grand and growing society. It has got beyond comparison with the societies of other states, and I hope we may ever keep it growing in numbers and enthusiasm. (Applause.)

Mr. E. M. Sherman, Charles City, Iowa: I think one of the things that marks the Minnesota Horticultural Society as a successful organization is the harmony with which its members and officers work together. I think I can heartily endorse what Prof. Green said, and I think the greatest credit for that success is due to Mr. Latham. I think there are but very few states that can claim to have such an able man in the position of secretary of their respective horticultural societies. I wish to congratulate you upon the harmony prevailing in your organization and upon the progress you have made and undoubtedly will continue to make. (Applause.)

Mr. Yahnke, Winona: I don't know that I have anything to say, I said so much today. A little girl said to her mother she had such a stomach ache she didn't know what to do. Her mother said, "Well, your stomach is empty, you had better eat something, and you will feel better." By and by the minister came to the house to make a call and he complained that he had a severe headache. The little girl overheard him and said, "I guess your head is empty, you had better eat something, and you will feel better." (Laughter.) Perhaps my head is empty too. A man finds out what a good wife he has when she is dead or when he goes away from home, and I found out what a good society we had when I went away from home. When I was down at St. Louis this summer I had the opportunity to represent our society among a good many others, and there I found out that we had the largest and one of the most harmonious societies in the United States. Every one there had some complaint to make, but I had none. I think we ought to be congratulated upon the officers we have that are conducting the affairs of our society. They generally say the secretary is the soul of an organization, and I know that our society has got a good soul, and no good soul can live without a sound body. If a body eats it will surely grow, and I believe our society is in a good healthy condition and will continue to grow because it has got a good soul and a good body. (Applause.)

Mrs. Wm. Robertson, St. Anthony Park: I have only one thought to give out and that is not very complimentary. I want to know where the wives of all these men are. The ladies that are here are like angels' visits, few and far between, and I simply want to throw out the suggestion that next year you bring your wives along. (Applause.)

Mrs. J. W. Ray, Minneapolis: I can say that I am very much interested in this society, and I am interested in fruit culture, although I have only a 7x9 orchard. I am very glad to see so large a representation at this meeting. I have not been able to attend the meetings all the time, but those I did attend I enjoyed very much.

Mr. T. T. Bacheller, Minneapolis: I have not been able to be present at all the meetings, but it was not because I did not want to come, but because I could not. I always enjoy the meetings of the State Horticultural Society, and what impresses me more than anything else is what this society has done. I was impressed with the wonderful exhibit of fruit you made this year. You have been gathering first premiums and prizes at home and abroad. This society has done so much to improve conditions all over the state, and has done so much to encourage fruit growing that the enthusiasm permeates every corner of the state, and when you go home you will have no trouble to add to the membership and increase the enthusiasm, and that is the thought that should be before the society.

Mr. C. M. Loring, Minneapolis: Mr. President and Gentlemen: I became a member of this society in 1868. At that time we used to display a few plates of crab apples, and from that small beginning has developed this beautiful and magnificent display we see here today, one of the finest sights I ever saw in my life. I saw a lady here yesterday who is familiar with the apples of Maine. She did not see any Greenings or Baldwins. I said those apples were all grown here, they were natives of Minnesota. I doubt whether there is any more beautiful display than we can see here. I want to add one word as a plea. I want to plead with those who live in the country to do something toward planting trees along the roadside. There were several suggestions made here yesterday, and I want to make one or two more. One gentleman wanted to plant birch trees, and our worthy president wanted to plant pine trees. When you can go all over Europe and all over the United States and see the most beautiful avenues in the world and know they are planted with trees that are a hundred or two hundred years old, why do you wish to plant such short lived and ungainly looking trees as some that have been mentioned? I want to make this plea to plant maple or elm or hackberry trees, something that will remain when we are gone and that our children and grandchildren may enjoy. (Applause.)

Mr. Wyman Elliot: Mr. President and Brother and Sister Horticulturists: It gives me great pleasure to have the privilege of making the closing speech of this delightful meeting. The thirty-eighth annual meeting is about drawing to a close, and I do not know how to express my gratitude at the pleasure it has given me to meet so many of the old friends and greet them once more. I started in this society as a charter member thirty-eight years ago, and I have not let go one bit of the enthusiasm for the success of horticulture in the northwest during all that time. I have been in the harness continuously, and I expect to remain in it as long as I live. I have been frequently opportuned to go to this state or to that state, to Oregon, Washington or California, where the conditions are more favorable perhaps, but I tell my friends, "No, I came to Minnesota in 1854, and I expect to live and to die here," and I hope and trust that the younger members, when we pass off the scene, will take up this work and carry it along in the same spirit with which their predecessors have carried it on. It has been a labor of love with many of us. We have put in a great many hours and a great many days into this work, and we are just beginning to see results, and the exhibition we have made of our fruits this year is the best evidence of those results. I hope the interest in horticulture will continue to increase, that the good work will go on and that we shall yet reap a rich harvest. (Applause.)

Pres. Clarence Wedge, Albert Lea: I see that the president is down on the program for a few closing remarks, but I feel unworthy to make any remarks after all these members have spoken, and I especially hate to follow Mr. Elliot. I think we may ascribe a great deal of the success of our meetings to the efforts of the local members here in this city, and I think you know pretty nearly who they are. I think they could not have found a more favorable or a more suitable place in the United States if they had all the buildings to choose from, than this quiet and restful sanctuary with its beautiful decorations, and the faces that look down upon us from the two portraits seem to beam a special benediction upon us. In speaking with a friend the other day a good deal of astonishment was expressed that we could keep so well together. It really called my attention to a fact I had never thought of before. It never seemed to me that it could be otherwise. I was much pleased to notice this afternoon, even though it is the closing session, that so many were present, and every day we have had just about so many here. The larger number have come early and stayed late or until very near the closing exercises of the meeting. A good many things that were in my mind and that I wished to say to you were stolen by those who have preceded me. I do wish again to commend the beautiful harmony that has been with us during this entire meeting. Whatever the inclination may be of stirring up things, of "stirring up the animals," as the saying goes, the utmost good nature and harmony has prevailed throughout all our discussions and deliberations, not only at this meeting but through past years, and I hope this state of things may continue. It seems to me there can be no possible time or occasion for hard feeling among men who are interested in practically the same work, and let us see to it that in the future we do not allow any of the seeds of discord to be sown among us, but let us keep on in this beautiful harmony, the spirit of which has pervaded our entire meeting. Let us carry some of the enthusiasm we have imbibed here home with us into our work. We need it; we do not know what is before us, we do not know at what time the storm may strike us, and we ought to carry back with us all the enthusiasm we possibly can to help us along through the year to come. Let us try to add to the membership and try to help each other in every possible way. With these words I will declare the meeting closed. (Applause.)

Executive Board,

1905.

RECORDS OF EXECUTIVE BOARD, 1905.

RECORD OF MEETING HELD IN SECRETARY'S OFFICE, MINNEAPOLIS, DEC. 5, 1904, AT 7:30 P. M.

All members present except J. M. Underwood.

The following accounts were audited and ordered paid:

A. W. Latham, Sec'y., expenditures of secretary's office June 23, 1904 to Dec. 5, 1904	$574.20
A. B. Lyman, Treas., premiums awarded at winter meeting, 1903	$185.80
A. B. Lyman, Treas., premiums awarded at summer meeting, 1904	$153.50

Wyman Elliot, S. B. Green and A. W. Latham were authorized to use their judgement in the matter of a loan to be made of certain funds belonging to the society now in the Hennepin County Savings Bank.

The secretary was instructed to correspond with contributors to the Gideon Memorial Fund as to a release from obligation to prepare a memorial book to send to them.

It was decided to ask the state legislature to increase the printing of the reports of the society by two thousand volumes annually.

Adjourned to meet in secretary's office at 8 A. M. Dec. 9, 1904,

A. W. Latham, Sec'y. Wyman Elliot Chairman

RECORD OF MEETING HELD IN SECRETARY'S OFFICE AT 8 A. M. DEC. 9, 1904. PURSUANT TO ADJOURNMENT.

All members present at opening of meeting except J. M. Underwood and L. R. Moyer.

Wyman Elliot was elected chairman of the board for year 1905, and A. W. Latham was elected secretary at a salary of $100.00 per month.

The salaries of the president and treasurer were fixed at $25.00 per annum each.

It was decided to locate trial stations at the following places: Glencoe, A. H. Reed, Supt., and Wrenshall, F. B. McLeran, Supt.

At this point J. M. Underwood came into the meeting.

Wyman Elliot, S. B. Green and A. W. Latham were constituted a committee with authority to fill vacancies in the offices of vice-presidents and appoint the regular standing committees of the society.

The secretary was instructed to remit $5.00 to the secretary of the "Association of State Horticultural Societies" as the annual fee of this society to a membership therein; also $20.00 to W. M. Hays, secretary of the "Plant Breeders' Association," as the life fee of this society in that organization.

Adjourned sine die.

Wyman Elliot, Chairman. A. W. Latham, Sec'y.

RECORD OF THE MEETING OF THE BOARD HELD IN THE SECRETARY'S OFFICE, 7:30 P. M. JUNE 20, 1905.

There were present at the meeting Messrs. Wyman Elliot, L. R. Moyer, J. M. Underwood and Sec'y. A. W. Latham. There being no quorum in attendance, the meeting adjourned to convene at the State Experiment Station the next day. A. W. Latham, Sec'y. Wyman Elliot, Chairman.

RECORD OF THE MEETING OF THE BOARD HELD IN ARMORY HALL, STATE EXPERIMENT STATION, AT 4:30 P. M., JUNE 21, 1905.

The following members of the board were in attendance: Wyman Elliot, Chairman, Prof. S. B. Green, J. M. Underwood, L. R. Moyer and Sec'y. A. W. Latham. The following accounts were audited and approved and drafts ordered to be drawn on the treasury for the respective amounts:

A. W. Latham, expenditures of secretary's office from Dec. 5, 1904 to June 20, 1905, $1648.96, leaving a balance in the hands of the secretary of $344.64.

A. B. Lyman, premiums paid at winter meeting, 1904, $198.20.

The Gideon Memorial Fund being under consideration, it was decided to appropriate from the treasury of the society a sufficient amount to bring the fund, including the balance on hand from subscriptions, up to the sum of $500.00, this sum to be deposited with the Board of Regents of the State University for investment, the interest thereon to be expended in premiums in connection with the horticultural department of the State Agricultural College, as before provided.

Upon motion of Prof. S. B. Green an appropriation of $25.00 per month from the funds of the society was made for educational work along forestry lines, this sum to be expended by the Minnesota Forestry Association with the approval of this board.

In the matter of a special premium of $100.00 offered by Mr. C. M. Loring, of Minneapolis, for a seedling plum, the following was agreed upon as the description of the fruit and tree that will be entitled to the prize:

1. Color, reddish.
2. Size, averaging 1½ inches in diameter.
3. Quality, as sweet as Ocheeda.
4. Pulp, firm when ripe.
5. Skin peeling easily when mature.
6. Without astringency when cooked.
7. Fruit not late in ripening.

8. Tree an early, regular and annual bearer.

9. Tree a good grower, productive and hardy in Minnesota.

Messrs. Wyman Eliot, J. M. Underwood and Prof. S. B. Green were appointed judges in connection with this award.

The account of Wyman Elliot for seedling apple and plum trees, furnished in connection with plant premiums sent out by the society the past spring, was allowed at $55.35, and the secretary instructed to make payment to him for this amount.

Adjourned sine die,

Wyman Elliot, Chairman. A. W. Latham, Sec'y.

MEMBERSHIP, 1905.

ANNUAL MEMBERS.

Aanes, N. J	Clarkfield
Acklin, H. G	St. Paul
Ackerman, A. W	Young America
Ackerson, A. E	Elbow Lake
Ader, J. P	Adrian
Ahnemann, Aug	Pine Island
Ahlstrom, John	Spicer
Akin, D. F.	Farmington
Almquist, Chas.	Otisville
Alsaker, R. A	Benson
Alling, S. A	Homer
Allen, J. C	Glencoe
Albers, J. H.	Glencoe
Allen, L. W	Anaheim, Cal
Alvord, W. C	Sherburne
Allen, Wm	Leroy
Aldrich, Chas	Buffalo
Alton, Burr D	Ceylon
Allen, S. E.	Brown's Valley
Allee, E. D	Eagle Bend
Amtsbauer, F. H	Franklin
Anderson, D. O	Payne
Anderson, Alfred G	Tamarack
Anderson, Erik	Lake Park
Anderson, Curtis	Hewitt
Anticknap, H	Regina, N. W. T.
Anderson. Nils	Lake City
Anderson, A. G	Benson
Andrews, J. P.	Faribault
Andrews, C. C	St. Paul
Anderson, Louis	Long Lake
Anderson, Alfred	Clara City
Anderson, C. A	Litchfield
Anderson, Andrew	Litchfield
Anderson, N. C	Deerwood
Anderson, J. K	Granite Falls
Anderson, Robert	Kensington
Anderson, Alfred	Glenwood
Anderson, N. M	Hoffman
Anderson, Louis	Rochester
Anderson, John	Evansville
Anderson, A. D	Wadena
Anderson, P. E	Kandiyohi
Anderson, H. J	Jackson
Anderson, J. A	Rollag
Anderson, Christian	Muskoda
Anderson, J. P	Aldrich
Anderson, N. J	Rush City
Anderson, Hans Geo	Nicollet
Anderson, B. N	Albert Lea
Armstrong, J. A	Winnebago City
Arneson, M	Shelley
Armitage, C. W	Canby
Archibald, A. H	Big Lake
Arnold, Joseph	St. Peter
Aschenbeck, J. H	Mpls
Anderson, Matthias	Lake Benton
Anderson, A. E	Kandiyohi
Anderson, A. P	Tyler
Anderson, J. C	Ruthton
Anderson, Gideon	Franklin
Anderson, N. E	Braham
Anderson, A. M	Hawich
Austin, L. E	Glencoe
Austin, O. A	McVille, N. D.
Aune, Martin	Starbuck
Austvald, Nels B	Glenwood
Austin, J. C	New Brighton
Austin, M. G	Park Rapids
Aune, Olaf	Underwood
Bacheller, T. T	Mpls
Batcheller, C. E	Fingal, N. D.
Barton, Mrs. Isabella	Excelsior
Baird, Andrew B	Winnipeg, Man.
Bates, W. K	Stockton
Batchelor, J. P	Mpls
Baldwin, H. J	Northfield
Bailiff, R. L	Bloomington
Bayard, P. C	Eden Prairie
Barseness, J. A	Kenyon
Batho, Geo.	Winnipeg, Man.
Bailey, H. E	Breckenridge
Bakke, John	Sacred Heart
Bakken, N. H	Kensington
Barry, John, Jr	Underwood, S. D.
Balckwood, T	Winnipeg, Man.
Bachmeier, Gustav	Young America
Baird, M. E	Mpls
Baklund, C. A	Willmar
Barnstad, Ole	Willmar
Barnard, Mrs. M. M	Mpls.
Barberg, I. A	Cokato
Barholz, F. C	Fertile
Banleke, H. W	Le Sueur
Barker, A. W	Underwood, S. D.
Berg, Hans O	Cottonwood
Beckwith, F. W	Evanston, Wyo.
Best, E. D	Mpls.
Bennett, E. A	La Moure, N. D.
Berry, Frank	Stillwater
Benson, J. H	Robbinsdale
Beckley, J	Nerstrand
Benjamin, J. F	Hutchinson
Beltz, F. A	Boyd
Berger, O. K	Crookston
Becker, Otto E	Johnson
Berg, I. O	Whalan
Beckstrand, John	Litchfield
Becker, J. C	Adrian
Benson, Edwin	Petersburg
Bentz, E. A	Cresco, Ia.
Bergh, M. P	Madison
Bedford, S. A	Brandon, Man
Becker, J. H. G	Cannon Falls
Berger, Hans	Renville
Bendix, Wm	Odessa
Benefiel, Chas.	Mpls
Berg, Chas. A	Excelsior
Belgum, T. H	Farwell
Benson, Aug	Kensington
Bergie, John P	Starbuck
Beech, W. L.	Sedan
Beckman, J. W	Cokato
Berg, Aug. A	Murdock
Bertelsen, Chr	Albert, Lea
Bergerud, M. E	Fergus Falls
Benjamin, R. G	Hutchinson
Bennett, J. K	Slayton
Beck, Will B	Big Lake
Berg, I. I.	Climax
Benson, E. H	Granite Falls
Best, E. C	Mpls.
Besserud, M. O	Maple Plain
Berglund, Jos.	Scandia
Bennett, Wm	Lowry
Bell, Edward	Sioux Falls, S. D.
Beal, J. J.	Ruthton
Bergerud, H. C	Squier
Bellig, G. E	New Avon
Beardsley, Benj. F	St. Paul
Bisbee, John	Madelia
Bierman, Henry	Glencoe
Bishop, E. A	Merriam Park
Bishop, C. R	Worthington

Bigelow, Frank W..................Mpls.
Biddle, E......................Kirkhoven
Bickerdike, R. N..............Tyler, Tex.
Bill, James ....Madelia
Bitzan, Frank ....Evansville
Billings, C. R., Jr..............Audubon
Billings, C. R...................Audubon
Bjornberg, Joe C................Willmar
Bjelland, Reinhard ....Hoffman
Bland, Mrs. Richard P......Lebanon, Mo.
Bly, C. W..........................Osakis
Blair, C. L..................St. Charles
Blanchard, B. S...............Lewiston
Blakestad, L.........................Lyle
Blanchard, E. H..................Morgan
Bost, A. A.....................Excelsior
Bosshard, Fred ....Moorhead
Boyle, M. S.......................Adrian
Boyd, C. T..........................Mpls.
Bogrin, Adolph ....Constance
Bowman, Dr. Fred ....Duluth
Boutwell, E. E......................Kasota
Bogart, W. S. Vandl...........Zumbrota
Boelk, Ferdinand...................Lansing
Boettcher, Fred G...........Granite Falls
Borden, John ....Buffalo Lake
Bonde, Edwin................Cottonwood
Bowers, Merrill ....Le Roy
Bordsen, R....................Evansville
Bocock, A. L......................Grogan
Boardman, F. H.....................Mpls
Bonwell, Arthur ....New Earth
Bowers, D. M.............Howard Lake
Boardman, Mrs. H. A............St. Paul
Bonallie, Wm. ....Lyle
Boynton, E. W.....................Eyota
Borncamp. Benj. F..................Mpls.
Borg, Eric ....Turner, Neb.
Bonska, Frank ....Silver Lake
Boss, Andrew ....St. Anthony Park
Boss, Wm. ....St. Anthony Park
Bowden, Dr. R. W.................Duluth
Bryant, Mrs. C. M..........Sauk Center
Brown, J. A......................Windom
Brackett, A......................Excelsior
Brown, J. P.........................Eureka
Bruels, Hubert ....St. Clair
Brown, Mrs. Chas. ......Cavalier, N. D.
Brown, W. M.......................Colony
Brimhall, W. H...................Hamline
Brace, B. W.........................Mabel
Bromstad, Andrew..................Milan
Brogard, John N..................Henning
Brainerd, John............Portland, N. D.
Bruns, F. D.......................Nicollet
Brackelsberg, C. D.............Madelia
Brady, C. H......................Deerfield
Brevig, A. L......................Starbuck
Brown, Frank ....Paynesville
Broman, Aug.....................Atwater
Briard, F. W......................Gaylord
Brevig, C. L.....................Starbuck
Brown, Aug. ....Winthrop
Brand, J. F....................Lamberton
Branson, M. L.........Claremont, N. D.
Brevig, C. A......................Starbuck
Brechet, J. J. ....Glencoe
Brush, C. C. ....Pipestone
Broberg, Peter ....New London
Briest, G. H......................Arlington
Brown, J. N.................La Crescent
Brunes, Ole ....Smiley
Brown, Miss Emily C..............Mpls.
Bruce, Chas. R.........Elk Point, S. D.
Brown, C. B......................Hinckley
Braunwarth, A. C. ....Chaska
Brooks, F. S...............Farmer, S. D.
Brickey, R. S....................Britt, Ia.
Bradbury, I. G....................St. Paul
Briggs, O. P.........................Mpls.
Burdick, C. H.......................Mpls.
Buswell, L. A. ....Bruno
Bugge, Nels ....Albert Lea
Bull, C. P...............St. Anthony Park

Busse, H. F. ....Mpls.
Buchanan, D. W. ......St. Charles, Man.
Burtness, H. A..............Spring Grove
Burtness, H. E.................Caledonia
Butler, Gilbert ....Mabel
Busch, Leonard........................Fulda
Bugbie, A. E...................Paynesville
Burtness, Adolph ....Elbow Lake
Burtman, E. A. ....Leslie Prairie
Bundy, W. W. ....Battle Lake
Burner, Geo. A......................Mpls.
Bundy, A. A......................Madelia
Buss, O. E........................Edgerton
Busser, Geo. ....Madelia
Butterfield, G. E. ....Milaca
Bursch, A. T. ....Otisville
Burke, J. H. ....Sleepy Eye
Buggs, Wm. A...................Stockton
Bull, M. E...........................Currie
Burton, Miss Hazel ....Deephaven
Burud, Hoken ....Moose Lake
Bunnell, M. C....................Newport
Butler, W. S. ....Chetek, Wis.
Carlson, C. H.......................Fertile
Carlson, Caleb ....Carver
Cordozo, R. N...............Forest Lake
Carroll, R. C............St. Anthony Park
Cairns, Miss Gertrude M..Ellsworth, Wis.
Casau, S...................New Brighton
Case, George E. ....St. Peter
Campbell, D. D., E. V. ....St. Cloud
Campion, Neil V. ....Faribault
Campion, J. A..................Faribault
Carlson, Edwin....................Brandon
Calkins, Thos. ....Ft. Ripley
Calkins, R. L...................Menahga
Carlier, August............Dodge Center
Campbell, P. A.......................Mpls
Carpenter, G. L.......Vermillion, S. D.
Carlson, J. A. W............Eagle Bend
Carlson, C. J...............Taylor's Falls
Cassaday, Geo....Valley Springs, S. D.
Campbell, M. F......................Tracy
Cantwell, W. W. ....St. Paul
Caldwell, John ....Virden, Man.
Case, E. E..........................Staples
Carr, W. A.......................Excelsior
Chloupek, Emil ....Faith
Chrisman, Chas. E............Ortonville
Chapman, R. W..................Plainview
Chowen, Wm. ....Minnetonka
Chamberlain, Mrs. Louis M.........Mpls
Christensen, P. C............Hutchinson
Chapman, Cyrus ....Delano
Christensen, Albert ....Constance
Christelow, W. T..............Glenwood
Christensen, P. A...............Hinckley
Cheney, W. H........................Olivia
Christensen, M. A...................Irving
Chesney, T. E........................Mpls.
Chambard, F. G....................Hanska
Church, L.........................Madelia
Chaffee, G. A.......................St. Paul
Chenev, John .... Beaver Falls
Church, B. C........................Duluth
Chandonnet, Rev. Z. I.........Mahnomen
Chamberlain, G. P. ....Northfield
Chase, O. C.................Fergus Falls
Christenson, B. P. ....Hutchinson
Cihla, James ....Montgomery
Cisney, Elmer ....Madelia
Clausen, Hans A..............Sleepy Eye
Cleveland, Henry ....Duluth
Clausen, P.....................Albert Lea
Clementson, Nels ....Fertile
Clemons, L. A.........Storm Lake, Ia.
Clouston, A.......................Rothsay
Clark, Wm. ....Rockford
Clark, Samuel.....................Royalton
Clifford, H. H. ....Royalton
Clemens, E. J..........Prescott, Wis.
Clarke, Jos. ....Mpls.
Conklin. Wm. ....Cambridge
Comstock, Albert H..............Duluth

Collins, Wm. S	Wadena
Cook, Dewain	Jeffers
Cook, Mrs. Louisa	Hutchinson
Cowles, Fred	West Concord
Corson, B. F	Glencoe
Coles, D. H	Lakeville
Conrad, John	Ortonville
Cooley, E. G	Morristown
Cort, M. J	Mpls.
Cowles, E. D	Vermillion, S. D.
Coe, M. E	Little Falls
Cooper, E.	Adrian
Cocking, F. J	Pelican Rapids
Cook, M. P	Alpha
Cooling, Geo.	Madelia
Colebank, E.	Madelia
Cox, E. G.	Detroit
Cole, J. H.	Tracy
Cook, F. L	Spearfish, S. D.
Coffen, E. H	Robbinsdale
Cooke, F. J	Roseau
Cole, Helmer	Perley
Core, W. B	Mpls.
Crosby, S. P	Braham
Crooker, Mrs. M. Anna	Excelsior
Crane, H. L	Excelsior
Crone, Ferdinand	New Ulm
Cross, Mrs. E.	Sauk Rapids
Crosby, Hon. F. M	Hastings
Crockett, E. D	Mpls.
Cross, L. E	Randall
Culp, Chas. O	Pine River
Curtis, O. H	Osakis
Cutting, F. E	Byron
Cuzner, E. A	Mpls.
Cuzner, Harold	St. Anthony Park
Cutler, M	Hillyard, Wash
Cummings, Geo. W	Mpls.
Cullen, P. J	Underwood, N. D.
Dahl, Hans M	Osnabrock, N. D.
Day, Stephen H	Northfield
Davidson, Robert	May, Wis.
Dahl, John H	Chandler
Dahle, Thos. K	Brownsdale
Daily, M. J	Fargo, N. D.
Davis, O. H	Madelia
Dalseng, John P	Starbuck
Daleger, N	Glenwood
Davis, Evan J	Garvin
Dauk, Philip	Mankato
Dassett, Martin	Madelia
Dahlen, O. E	Albert Lea
Dahl, C. T	Madelia
Daniels, Miss Susan M	Mpls.
Danielson, G. A	Randall
Daily, W. C	Eagle Bend
Dahl, John	Center City
Davidson, W. C	Mpls.
Davison, A. H	Des Moines, Ia.
Dahl, T. A	McIntosh
Dalberg, O. J	Sandstone
Davis, Rev. B. C	Alfred, N. Y.
Dea, John	Mpls.
Decker, Jacob S.	Austin
Dean, E	Mpls.
Deline, W. F	Cannon Falls
Dewar, James	Crookston
Dehrer, Henry	Mendota
Dean, W. H	Morristown
Dey, Wm	Sleepy Eye
Delamater, D. P	Mpls
Develle, E. A	Burtrum
DeGraff, Hiram	Bellingham
DeMars, G. J	Fertile
Dike, C. C	White Bear
Ditthelman, Michael	Victoria
Dickson, W. A	Almena, Wis.
Dixon, Oscar	Canby
Dikes, C. C	Perham
Dixon, J. K	No. St. Paul
Dixon, A. J	Pipestone
Domrese, F. G	Magnolia
Doffing, Chas	Hastings
Dodds, J. E	Wheaton

Doepping, Wm.	Claremont
Dorken, C. O	Kenyon
Dolan, F. M	St. Paul
Donnell, L. O	Eagle Bend
Doughty, A. B	Milaca
Drum, S. H	Waseca
Drew, Prof. J. M	St. Anthony Park
Dunn, J. W. G	St. Paul
Durrell, J. J	Big Fork
Duckstad, B	Fertile
Dunning, Mrs. D. E	Excelsior
Dynes, W. S	Owatonna
Eaker, E. C	Albert Lea
Eagen, Eugene	Madelia
Eddy, P. P	Willmar
Eddy, W. H	Howard Lake
Edelman, Frank G	Rosen
Eddy, P. E	Howard Lake
Effertz, Peter	Norwood
Egrell, A	Howard Lake
Eix, Gustav	Little Falls
Eikeland, P. J	Northfield
Ekdahl, P. W	Otisville
Eklund, P. A	Willmar
Ekgren, John	Buffalo
Ellingson, S	Mpls.
Elleckson, A. E	Lac qui Parle
Ellison, F. H	Mpls.
Elverud, Edward	Cannon Falls
Ellingboe, A. T	Maynard
Ellertson, R	Madelia
Elwell, Geo. H	Mpls.
Emerson, E. H	West Concord
Empenger, F. J	Maple Plain
Enersen, Albert H	Lamberton
Engen, C. H	Norway Lake
Endsley, P. M	Mpls.
Engelhorn, Louis	Church's Ferry, N. D.
Enborn, C	Excelsior
Engleson, F. J	Danvers
Englund, H. M	Lamberton
Engelrup, Wm	Morgan
Engester, Andrew	Twin Valley
Engel, A	Morgan
Ericson, E. M	Hector
Erickson, Oscar	Owatonna
Erickson, Ernest	Kerkhoven
Erdahl, Ole	Appleton
Erstad, A. C	Zumbrota
Erickson, Aber	Hoffman
Ericson, Dr. A. M	Hector
Erkens, Jos	Jordan
Ericson, G. R	Goodhue
Erickson, J. W	Aitkin
Erdahl, Absalom	Blue Earth
Erstad, G. A	Glyndon
Erickson, H. E	Hawley
Erickson, O. A	Kingston
Essig, Christ	Sanborn
Estenson, E. O	Climax
Essig, August	Sanborn
Evensen, C. E	Gibbon
Evans, W. J	Montevideo
Eves, Harriet K	Olalla, Ore
Farrar, Geo	Elgin
Farrar, F. F	White Bear
Fallis, M. H	Jamestown, N. D.
Farel, F. E	Glencoe
Farmer, E. A	Mpls
Fanning, Geo	Madelia
Faltzsek, V. F	Buena Vista
Falkenhagen, P. J	Montevideo
Ferodowill, F. X	Wayzata
Ferson, C. E	So. Haven
Featherstone, S. T	Red Wing
Felkey, D., Jr	Armstrong, Ia.
Fedje, A. O	Evansville
Felland, F. T	Sioux Falls, S. D.
Felland, Prof. O. G	Northfield
Fergursen, Jas. A	Hunters' Park, Duluth
Fitzer, Chas	Robbinsdale
Fisher, Earnest	Howard Lake
Fink, Christ	St. Bonifacius
Finnegan, John	Mpls

Flint, Henry W	Gladstone
Flouen, Swan	Constance, R. I.
Flagstad, J	Sacred Heart
Flikka, Olaus	Shelly
Fleming, Albert	Garden City
Flaten, Dr. Nils	Northfield
Flesland, M. O	New London
Flatin, G. F	Spring Grove
Flyen, Henry	Dawson
Forx, J. A	Benson
Foster, Mrs. Jennie	Waterville
Foss, John H	Long Prairie
Fortin, Geo. E	Mpls.
Ford, Frank H	Mpls.
Foster, Isaac	Sebeka
Foss, H. E	Madelia
Folsom, H. H	Mpls.
Follett, Denis	Hastings
Fowler, L. M	Waterville
Forgerson, G. A	Rosemount
Forbord, Mr. O	Hanley Falls
Frederickson, S. C	Cobden
Frenn, P. J	Red Wing
Fryer, W. E	Mantorville
Frank, Chas. A	Constance
Fritze, Leonhard	Claremont
Frank, Gustave	Buffalo
Fredlum, Lewis	Braham
Frye, P. H	Willmar
Freeman, Jonathan	Austin
Freeby, Earl O	Zumbrota
Fry, J. J	South Shore, S. D.
Fuller, E. D	Mpls.
Gaulke, F. F	Brownton
Ganser, Wm	Dawson
Gardner, J. W	Big Stone
Gausen, W. C	Ellendale
Gabrielson, F. G	Otisville
Gardner, C. W	Mpls.
Gastfield, A. F	Duluth
Gayner, J. N	Litchfield
Gallahan, F. A	Underwood, N. D.
George, E. S	Graettinger, Ia.
Geister, Andrew	Fertile
Gerth, Wm. B	Lamberton
Gergen, N. B	Hastings
Gerber, L. R	Odessa
Gerdsey, Henry	Victoria
Gedde, Geo	Nimrod
Gedde, Peter	Nimrod
Gearty, T. G	Robbinsdale
Gehlen, Fr	Glencoe
Gilbert, L. W	Glencoe
Gibbs, Mrs. F. A	St. Anthony Park
Gilbertson, A. O	St. Ansgar, Ia.
Gill, Edward	St. Paul
Gilbertson, G. G	Utica
Glosse, F. C	Stillwater
Gilbertson, A	Milan
Gilinson, Pet	West Duluth
Ginder, Henry	Hinckley
Giles, M. E	Albert Lea
Gilland, Geo	Morgan
Giergersen, J. A	Fertile
Gilbert, J. V	Proctor
Gjertson, Geo	Madelia
Gilman, J. E	Winnebago City
Gibbs, F. H	St. Anthony Park
Glyer, Alfred	Forest Lake
Glaeser, Jacob	Owatonna
Gloan, F. G	Ellendale
Gweiner, Rev. John	Springfield
Goodman, D. E	Faribault
Gorman, Patrick	Sabine
Gove, Ed	Madelia
Goetzke, Aug. F	Mendota
Goergen, Peter E	Long Lake
Gove, E. J	Bingham Lake
Gove, C. W	Windom
Goetsch, Joe	Waltham
Goodell, C. A	Mankato
Grindeland, A	Warren
Grover, O. J	Glyndon
Grover, C. A	Glyndon
Greeley, M. F	Gary, S. D
Griswold, A. A	Wayzata
Grannis, G. F	Vernon Center
Grant, Dr. Eugene	Moorhead
Grant, John	Stacy
Gregory, Henry	Jordan
Grandy, John	New Sweden
Gronner, Alfred	Underwood
Grayling, N. E	Spring Valley
Grant, C. F	Windom
Grant, A. D	Randall
Gray, A. N	Bay Lake
Gregory, Wm. T	Hewitt
Grier, Matt	Emmettsburg, Ia.
Gregory, John	Hutchinson
Gregg, O. C	Lynd
Greenfield, T. H	Balaton
Green, Prof. S. B	St. Anthony Park
Gudal, J. A	St. Anthony Park
Gullette, Albert	Robbinsdale
Guilford, C. A	Mpls.
Guy, Reuben	Cedar
Guldseth, S. H	Ashby
Gurney, C. W	Yankton, S. D.
Gunderson, Gust N	Kenyon
Gustafson, A. M	Hitterdal
Guam, Lewis	Lockwood
Gustafsen, E. B	Fertile
Gulleckson, C. J	Beltrami
Gunderson, Gustav	Webster, S. D.
Hall, F. R	Hawley
Haggard, H	Excelsior
Hays, Prof. W. M	Washington, D. C
Hanks, David	Russell
Hanson, Amund	Fertile
Haseltine, F. T	Crookston
Halloff, Mrs. Ellen	Carver
Hart, Geo. W	Lakewood, N. D.
Hazard, R. B	Mpls
Hamustrom, C. J	Mpls
Hawkins, John	Mpls
Hamlin, Alonzo	Spring Valley
Hanson, Mons	Stillwater
Hanson, Louis	Constance
Hanson, Alfred	Constance
Hansen, C. N	Rush City
Hawkes, A. S	Waseca
Hacke, F. O	Ashby
Halvorson, J. L	Madelia
Hanson, Henry	Barry
Hassler, Louis	Johnson
Hazleton, D. C	Cutler
Hagen, Ole J	Hendrum
Hawkins, J. C	Austin
Hansen, H	Albert Lea
Hagan, Edward	Hagan
Hamre, E. J	Granite Falls
Haga, J. A	Granite Falls
Haug, H. C	Renville
Harms, Harry	Cologne
Hart, F. B	Mpls.
Hagen, H. K	Glenwood
Hair, P. S	Byron
Harmon, J. B	Grove Lake
Hamre, O. L	Crookston
Hanson, J. G	Kasson
Harrison, J. F	Excelsior
Hannah, Robt	Fergus Falls
Hall Geo	West Concord
Hatledal, O. O	Benson
Harmes, Chas	Sebeka
Hage, Geo	Madelia
Haycroft, Jule	Madelia
Haycroft, Emery	Madelia
Hagen, A. J	Hendrum
Hanson, C. L	Rindal
Halloway, Thos	Dodge Center
Hartt, W. W	Delavan
Hanchett, F. B	West Lebanon, N. H.
Hawkins, A. O	Excelsior
Hammer, M. E	Heiberg
Hamilton, Geo. H	St. Paul
Hanscom, W. H	Mpls
Hanson, J. B	Anoka

Hage, Nels........................Becker
Hayton, John......................Hewitt
Hanson; A. L..........................Ada
Hanson, Mrs. A. S..................Mpls.
Hanson, Christian.......Hammond, Wis.
Hart. E. W..............Madison, S. D.
Hansen, C. H.......................Mpls
Hanson, Norman..................Fertile
Harris, Geo. W..................McHugh
Hanson, J. P...........St. Ansgar, Ia.
Harley, Hugh..........Swan River, Man
Hactor, A...................Worthington
Haseltine, E. W......Grand Forks, N. D
Haynes, Prof. A. E..................Mpls
Hanson, Martin.........Underwood, N. D.
Hanson, Otto.....................Starbuck
Hermanson, Ole J...........Albert Lea
Henderson, M. B............Forest Lake
Hermundie, L........Abercrombie, N. D.
Heins, H. H.........Los Angeles, Cal.
Hess, Jacob..................Lamberton
Headley, Wm......................Dunnell
Hendrickson, M. P...........Montevideo
Heglund, Chas................Constance
Henke, Miss Ida..............Wood Lake
Hesselgrave, R. V........Winnebago City
Helland, T. C......................Whalan
Hermanson, Ole..............Albert Lea
Hendeen, Fred................Montevideo
Hester, F. J.....................Litchfield
Herrick, A. E................Little Falls
Heifert, E. A...................Stillwater
Heald, W. H..............Letcher, S. D.
Hemmelgarn, Jos.................Perham
Hegstrom, Olaf.....................Shafer
Hebbel, Henry....................Windom
Heimark, J. H..............Granite Falls
Heidwinkel. Leo..................Mankato
Heinen, John......................Hastings
Heath, C. C........................Beltrami
Helmer, S. O........................Buffalo
Hewitt, Arthur.......................Porter
Heitz, Paul..........................Glencoe
Hedman, D......................Lamberton
Hemstadt, M. A...............Montevideo
Henry, W. B.........................Rogers
Henneker, W. S.......................Mpls.
Herrick, U. G.........................Mpls.
Hibbs, D. R. P..................Albert Lea
Hilstad, O. C........................Nicollet
Hinckley, C. N.......................Osseo
Higgins, B. F..........................Barry
Higbie, W. S................Eden Prairie
Hillstrom, John A........Brown's Valley
Highmark, L. P...............West Duluth
Highhouse, J. C...............Little Falls
Hill, C. L.........................Albert Lea
Hintermister, J. Henry, Jr......St. Paul
Hillger, Rev. Aug.......................Boyd
Hilbert, J. D.........................Mt. Lake
Hitterdal, B. A...................Hitterdal
Hilleboe, H. S......................Willmar
Hill, A. W............................Amboy
Hilbert, Ferd..........................Albany
Hjermstad, Hans....................Balaton
Halcombe, Ed.......................Otisville
Holmgren, Alfred...................Pennock
Hoglund, O......................Center City
Holcome, Moody...........Lester Prairie
Howland, F. B....................Northfield
Hofstrom, Edward..................Litchfield
Holger, John........................Rushford
Holen, J. F.........................Pine City
Holen, J. A....................Cannon Falls
Hoard, H. E......................Montevideo
Holden, Edward ....Elk Point, S. D.
Holzapfel, Fritz..................Robbinsdale
Holt, John E.........................Carver
Hoss, Mrs. N.........................Fertile
Hornstad, Ed.........................Farwell
Holmgren, P. O.....................Hoffman
Hodgson, T. C..................Elbow Lake
Hotchkiss, H. B........Eau Claire, Wis.
Hotz, Jacob..................Arcadia, Wis.

Holm, Wm..........................Franklin
Hoag, Geo. E..........................Mpls
Homme, Ole O...............Heron Lake
Hoyt, B. T...................Merriam Park
Hofland, J. O......................Windom
Holmes, R. N..........................Mpls.
Hooland, A. L........................Fertile
Hotz, John............................Adrian
Hogan, Walter.....................Pillsbury
Holcomb, F. A.....................Otisville
Hoffman, Peter..............Fergus Falls
Holty, G..............................Bagley
Holm, Edward........................Rindal
Holmburg, N. J...................Cambridge
Horvik, Brown A......................Fertile
Homlevig, John................Twin Valley
Horton, W. H....................Alexandria
Hoode, C. O......................Hendricks
Hulbert, C. S..........................Mpls
Hume, R. S............................Mpls
Huff, Theo. A..................Fergus Falls
Huseby, Henry.......................Bagley
Humphrey, W. A.....................Cedar
Huseby, A. A.........................Adams
Hurlbut, S. W...................Park Rapids
Hummel, John A.......St. Anthony Park
Hull, W. L....................Estherville, Ia.
Huseth, A. H..........Thief River Falls
Hurtt, Wm..................Hoople, N. D.
Humphrey, B. T....................Madelia
Humes, J. P.............Winnebago City
Hullberg, Hans........Washburn, N. D.
Innis, Rev. Geo. S..............St. Paul
Ilett, John....................Redwood Falls
Innis, Irvine...........................Aitken
Imsdahl, I. T......................Bigwoods
Ives, C. C..........................Pine City
Iverson, Carl....................Lake Benton
Imme, Emil.......................Albert Lea
Isaacson, A. W...................Kandiyohi
Ingram, L. de C..........Elkhorn, Man.
Janney, T. B...........................Mpls
Jacobson, Johnny..................Franklin
Jarchow, Geo.....................Stillwater
Jacobson, P. G.....................Madison
Jackson, J...................Regina, Can.
Jarvis, Chas. C.........................Mora
Jager, H. J........................Owatonna
Jensen, Anton......................McIntosh
Jensen, Andrew.........................Mpls
Jensen, E. P.....................Montevideo
Jensen, C. M.....................Albert Lea
Jensen, J. A......................Rose Creek
Jensen, T. P.....................Little Falls
Jennen, Michael....................Minneota
Jefferson, Miss Lucy E....Bingham Lake
Jensen, Peter..........................Milaca
Jensen, H. P...................Erwin, S. D
Jenness, B. F.......................Willmar
Jensen, Christen..........Waupaca, Wis.
Jewett, W. P..........................St. Paul
Jindra, F. J.....................Montgomery
Johnson, B. G................Granite Falls
Johnson, J. P......................Excelsior
Johnson, Gust.....................Constance
Johnson, Sam.....................Constance
Johnson, Emil.....................Constance
Johnson, A. W....................Constance
Johnson, Fred.....................Constance
Johnson, O. H.......................Willmar
Johnson, P. J......................Constance
Johnson, L. M.....................Constance
Johnson, Olof.......................Bricelyn
Johnson, Arthur...............Cannon Falls
Johnson, John........................Danube
Johnson, Wm.........................Renville
Johnson, J. G.........................Cologne
Jorgenson, I. B...................Hutchinson
Jones, Jno. D............Elk Grove, Wis.
Johnson, Carl E............Pelican Rapids
Johnson, J. A..........................Waseca
Johnson, Dr. A. E....................Cloquet
Johnson, John Ad.....................Hector

Johnson, A. E	Benson
Johnson, Chas. L	Audubon
Jones, Thos. C	Russell
Johnson, A. F	Milaca
Johnson, T. E	Foreston
Johnson, C. G	Taylor's Falls
Johnson, P. M	Lindstrom
Johnson, P. G	Lake City
Johnson, M. B	Nicollet
Johnson, J. E	Wrenshall
Johnson, H. G	Dassel
Jones, J. N	Russell
Johansen, Jorgen	Tyler
Johnson, Ernest	St. Cloud
Johnson, Peter	Starbuck
Julian, Henry P	Brandon
Jung, Jacob	Perham
Kaiser, A	Bagley
Kankel, Chas	Ulen
Kankel, Chas. O	Terrebonne
Katzner, Rev. John B	Collegeville
Kauth Jacob	Robbinsdale
Kapphahn, Gustavus	Alexandria
Kalberg, B. J	Hector
Kaufman, Martin	Watkins
Kadeclika, James G	Lidgerwood, N. D.
Kaer, N. C	Mpls
Kasper, Joe	Milaca
Kateley, Lucius	Sherburne
Kaercher, L. M	Ortonville
Key, C. L	St. Peter
Kennedy, Daniel	Biscay
Kennedy, J. W	Lake City
Ketcherson, Melville	Milnor, N. D.
Kellar, C. B	Albert Lea
Kennedy, J. H	Cheyenne, N. D.
Kenning, Chas	Bird Island
Kellogg, L. M	Three Rivers, Mich.
Kendall, J. J	St. Paul
Keller, Chas	Mpls
Keasling, F. J	Elk River
Keenan, E. B	Blooming Prairie
Keel, Nels	Darling, N. D
Kinkade, W. S	Sioux Falls, S. D.
King, Oswald	Brookfield
Kimball, F. W	Austin
Kibber, Chas	Bellingham
Kirkwood, H. O	Starbuck
Kingsbury, Mrs. Anna B	St. Paul
Kiehn, Chas	Dodge Center
Kissmer, Louis	Lamberton
Kingsley, Mrs. I. M	Stewart
Kinghorn, W. A	Rogers
Kirchner, Geo	Renova
Kjorstad, G. H	Starbuck
Klaksvik, Iver S	Underwood
Klug, Nicholas R	Caledonia
Klauser, H	Litchfield
Klefstad, Ole P	Watson
Kluvstad, T. A	Milan
Klovstad, J. O	Kindred, N. D
Klussman, E. C	Welcome
Knuppel, Fred	Billings
Knudson, Kittle	Hartland
Knutson, Lars	Fertile
Knowles, Mrs. M. A	Excelsior
Knudsen, P	New Duluth
Kolisch, Aug	St. Louis Park
Kough, Thos	Taopi
Kovar, Wansel	Owatonna
Kolars, C. C	Le Sueur Center
Kolbert, John	Mankato
Koetensky, J. J	Chatfield
Koch, Fred	Cannon Falls
Koeplin, Aug	Evansville
Korsmo, S. A	Franklin
Kording, John	Hayfield
Kohlmeyer, Wm	Blue Earth
Koloen, T	Adams
Kotton, Anton	Springfield
Kruger, Walter	New Paynesville
Kretz, Geo	Homer
Kroll, John	Lake Benton
Kron, Vicar	Kensington
Krenchnabel, G	Fertile
Krotoshinsky, Paul	Little Falls
Kietzer, Gottlieb	Vernon Center
Krier, D	Farmer, S. D.
Krog, Jens H	Lake Benton
Kruse, N. S	Tyler
Krocker, H. M	Mt. Lake
Kumerno, Herman	Lamberton
Kuster, E. H	Kerkhoven
Kugler, Miss V. H	Duluth
Kuvaas, J. K	Perley
Lambert, R. R	Rush City
Lamotte, Ed	Deehr, N. D
Larson, Louis	Minnetonka
Larson, Albert	Vasa
Lamont, Scott	Jarrett
Latta, Walter	Crookston
Lake, A. H	Black River Falls
Larson, Cornelius	New London
Larson, C. M	Albert Lea
Larson, P	Albert Lea
Larson, L. P	Renville
Lawrence, A. B	Robbinsdale
Laughlin, V. P	Litchfield
Larsen, Leonard	Isanti
Larsen, Oliver	Green Lake
Larsen, Alfred	Winthrop
Larsen, L	St. James
Larsen, Sven	Madelia
Larsen, Hans	Crookston
Larsen, J. R	Otisville
Laird, R. J	Perth, N. D.
Larsen, Peter	Milaca
Larin, Olaf	Milaca
Lamb, Chas	Baker
Lamb, D. A	Downer
Lane, C. W	Mpls
Lauritsen, Andrew	St. Paul
Larsen, C. F	Morgan
Lawson, L. P	Geneva
Lawrence, Louis	Courtland
Lano, A	Excelsior
Larson, A. F	Moorhead
Larson, L. U	Lowry
Laughlin, Wm	Owatonna
Larson, Iver	Madison
Lee, G. C	Minneota
Liebold, F	New Ulm
Leach, A. D	Excelsior
Leath, Fred	Cleveland
Lepine, W. E	Welcome
Lester, Erwin	Alpha
Lee, Geo. F	Madelia
Lennon, T. P	Starbuck
Lewis, Nelson	Louisville
Leavenworth, Francis P	Mpls
Leonard, E. A	Spring Valley
Lewis, C	Jackson
Lentz, A. H	Mankato
Leander, Hjalmer	Center City
Lewis, K. W	Minong, Wis.
Lenzmeier, Casper	Shakopee
Lee, Henry T	Fingal, N. D.
Lindstrom, A	Westbrook
Lindley, Clarkson	Mpls
Lindert, Carlos	Owatonna
Livingston, R. G	Spring Valley
Lilleskov, John	Stanton
Lindquist, John	Granite Falls
Lillemon, Ole	Lillemon
Lilley, W. W	Hankinson, N. D.
Liesland, K. W	Sebeka
Lindquist, Theo	Hoffman
Liebbrandt, Jacob	Jordan
Lietz, L	Dover
Linnell, C. W	Center City
Lindberg, Chas	Dassel
Lindley, I. C	Granada
Lindberg, And	Scandia
Lindberg, B. O	Beltrami
Lindland, H	Naples, S. D.
Linsley, E. B	Starbuck
Lohn, Lewis	Fosston
Long, F. B	Mpls

Longfellow, L	Mpls
Lorenz, Wm	Excelsior
Logering, Aug	Long Prairie
Long, A. G	Excelsior
Longworth, O	Annandale
Loeinveus, H. D	Bingham Lake
Loucks, E. W	Hutchinson
Lowe, L. H	Clotho
Lome, J. W	Fairmont
Looker, G	Scriven
Lundholm, Dr. E. M	St. Paul
Lundgren, E	Isanti
Lund, Alfred	Barrett
Lundgard, C. P	Sleepy Eye
Luker, Mrs. Lillie A	Waterville
Lucken, K. J	Portland, N. D.
Luchan, H. J	Rindal
Lundquist, Walter	Winthrop
Luther, Adis C	La Crescent
Lundblad, Peter	Hopkins
Lund, Victor	Scandia
Ludwig, Edward	Cottonwood
Lynch, Mrs. Jas. M	Collis
Lyngen, Peter	Watson
Marin, W. A	Crookston
Mareck, Titus	Mpls
Mattfield, Henry	Cologne
Magnusson, Sven	Harris
Madden, J. J	Adrian
Malcolm, H. W	Mpls
Mallery, J. H	Lakeville
Magneson, Wm. C	Trondjem
Massel, A. W	Albert Lea
Maddock, P. J	Norwood, N. D.
Mainz, Simon	Hastings
Maanum, Ole A	Kensington
Manderfield, Henry	New Ulm
Matson, C. A	Scandia
Martens, Henry	Adrian
Mager, Victor	Winnipeg, Man.
Manning, J. R	Booge, S. D.
Mathews, L. A	Wadena
Mack, Wm	Belview
Malinberg, E. W	Lafayette
Mather, J. S	Madelia
Maschgar, A. F	St. Paul
Mathison, J. A	Windom
Mathison, Geo. M	Windom
Martin, E. E	Claremont
Magnuson, J. I	Otisville
Marsh, F. L	Champlin
Madson, Henry	Madelia
Martenson, R. J	Tyler
Malberg, P. B	Warren
Mayer, E. E	Hudson, Wis.
Magie, Dr. W. H	Duluth
Martinson, John	Landa, N. D.
Mayon, J. A	Stewartville
Markhom, J. D	Rush City
Meyer, O. F	Fairmont
Merritt, C. W	Winona
Melgaard, O. L	Argyle
Merrill, S. M	Mpls
Melgren, J. L	Cologne
Melin, Victor	Center City
Mee, John	Gaylord
Meyer, Henry	Blue Earth
Merrill, H. L	Hutchinson
Mesenburg, Frank	St. Cloud
Meyer, C. H	Fairmont
Mesenburg, Mathias	St. Cloud
Miller, S. O	Lakeville
Mighton, S. R	Winnipeg, Man.
Mills, G. R	Buffalo
Miller, J. K	Sauk Rapids
Mills, W. E	Lac qui Parle
Mills, R. W	Greenleaf
Minsaas, E. O	Wegdahl
Mills, L. D	Lake Crystal
Mitchell, Mrs. M. M	Mpls
Mitchell, D. M	Owatonna
Miller, H. J	Cologne
Minars, Adolph G	New Prague
Miller, J. H	Big Lake
Miner, J. E	Excelsior
Miner, L. E	Foley
Miller, A. M	Harmony
Miller, E. B	Bloomington
Mickelson, John A	Starbuck
Millord, F. B	Willow River
Mogren, J. A	Kenyon
Moore, Mrs. Flora E	Mpls
Mohl, Fred	Adrian
Moyer, Lycurgus R	Montevideo
Moeser, Frank	St. Louis Park
Morgan, H. L	Bradley, S. D.
Moore, Christ	Constance
Moulton, E. S	Owatonna
Moore, O. W	Spring Valley
Moulton, H. R	Windom
Moede, Samuel J	Buffalo Lake
Moll, C	Sleepy Eye
Moklev, M. S	Battle Lake
Morton, John	Havana
Mosser, Fred	Madelia
Moore, Geo. C	Detroit
Monson, M. A	Bricelyn
Moede, W. F	Buffalo Lake
Mosher, M. J	Pillsbury
Mollen, E. E	Milaca
Moehlenbrock, Edward	Owatonna
Morine, F. E	Atwater
Moede, Gustav	Paynesville
Moore, R. N	West Mitchell, Ia
Munn, M. D	St. Paul
Murray, Mrs. E. M	Excelsior
Murray, J. W	Excelsior
Muckle, H. A	Merriam Park
Murphy, Roscoe	Madelia
Murrey, Rev. D. L	Blooming Prairie
Mueller, Ferdinand	Park Rapids
Mullin, P. T	Hutchison
Murray, C. M	Princeton
Mude, Gotleib	Morgan
Myrum, O. A	Louisberg
Myckleford, O. R	London
McGuire, A. J	Grand Rapids
McCarty, Ed	Madelia
McClasky, J. J	St. Peter
McAdams, S. H	Swea City, Ia.
McConville, Frank	Litchfield
McCallum, John	Barry
McDonald, J. S	Rush City
McCarty, Dr. W. J	Madelia
McCormick, Mr	Sebeka
McConachi, N	Perham
McGann, John	Pine City
McCurdy, J. B. K	Madelia
McClintock, R	Lakeville
McConnell, W. W. P	Mankato
McCoy, Michael	Dexter
McNulty, J. F	Owatonna
McMillen, H. C	Albert Lea
McMairy, H. D	St. Anthony Park
McMakin, G. W	Madelia
McMartin, F. B	Claremont
McMurran, Mrs. W. L	St. Paul
McLaughlin, W. W	Madelia
McLeran, J. B	Duluth
McKisson, G. D	Fairmont
McKellar, P. D	Jackson
McKenzie, Mrs. Anna	Hutchinson
McMartin, D. L	Claremont
McLeran, F. B	Wrenshall
McKeon, Dr	Montgomery
Nelson, C. N	Amo
Nelson, Carl	Constance
Nesseth, T. H	Fertile
Nelson, Hans	Fergus Falls
Nelson, John	Kerkhoven
Nelson, O. W	Deerwood
Ness, H. F	Hector
Nelson, Peter E	Montevideo
Nelson, Iver,	Cottonwood
Nelson, Henry	Cottonwood
Nelson, C. C	Kensington
Nelson, Ole S	Climax
Nelson, F. C	Kron

Nealy, W.	Deer Creek
Neilsen, Soren	Albert Lea
Nehl, Peter	Sebeka
Nelson, Geo. S	Foxleigh, Assa.
Nelson, J. A	Maynard
Nesburg, A	Franklin
Nelson, Helge	Raymond
Nelson, O. M	Chicago, Ill.
Nelson, C. G	Lindstrom
Nelson, Chas	Lindstrom
Newland, Clarence	Hendrum
Nelson, Peter	Red Wing
Nelson, H. P	Red Wing
Nelson, N. P	St. James
Nelson. A. P	Maynard
Nicol, J. I	Yellow Grass, Assa.
Nilssen, Robt	Morgan
Neilson, Geo	Braham
Nightingale, J. W	Hutchinson
Neilson, John	Ortonville
Niles, F. A	Cedar Rapids, Ia.
Nelson, Nic	Plummer
Northrup, J. E	Mpls
Norell, E. E	Isanti
Noyes, W. H	Owatonna
Nott, F. G	Howard Lake
Nordquist, John A	Renville
Norby, A	Madison, S. D.
Nordbye, Olaf W	Granite Falls
Norling, A. L	Svea
Noerenberg, Fred	Cascade Springs, S. D.
Nutter, F. H	Mpls
Nutter, Geo	Anoka
Nyberg, John	Milaca
Nystrom, Gust	Worthington
Nyquist, Gust	Fertile
Oastler, J. R	Crookston
Obut, Chas	North Branch
Oehmen, M	Robbinsdale
Oftedahl, S. O	Gregg
Ogilvie, Jas	Blue Earth
Ohloff, Chas	Postville, Iowa
Ohm, Richard	Gully
Olson, N. A	Otisville
Older, C. E	Luverne
Oliver, J. M	Lakeland
Oleson, M	Montevideo
Olsund, O. N	Beltrami
Opheim. Andrew	Fertile
Olson, E. S	Wheaton
Olsen, John C	Irving
Oleson, C. E	Perley
Oleson, John	Duluth
Oliver, John	Hutchinson
Olafson, Jens	Madelia
Olson, N. P	Princeton
Olson, John	Brehman
Olson, J. B	Willmar
O'Leary, Tim	Barnesville
Olson, H. P	St. Louis Park
Omland, Erik	McIntosh
Oman, Alex E	Grandy
Ongstad, H. H	Pelican Rapids
Onstad, Ole P	Maplebay
Opsahl, A. H	Oronoco
Opheim, Andrew	Fertile
Oppegard. E. O	Sacred Heart
Opheim, Knut	Fertile
Oredalen, Ole	Kenyon
Orton, C. J	Marietta
Oraas, Alfred	Clarkfield
Ostlund, John	Pennock
Ostron, Theo	Nicollet
Ostrum, S	Adrian
Oslom. John	Dassel
Ostenaa, Peter O	McIntosh
Otis, F. M	Brook Park
Ottinger, Theo	Chaska
Otte, W. W	Northfield
Overgaard, P. H	Albert Lea
Owen, S. M	Mpls
Owen, Robt	Skyberg
Owston, F. L	Fertile
Payne, S. D	Kasota
Patthey, H. L	Mpls
Paulsrud, Hans	Fertile
Parks, J. S	Amboy
Parks, W. S	Amboy
Patten, J. W	Long Lake
Patten, H. G	Charles City, Iowa
Palmer, Wm. H	Brownsdale
Page, Leslie	Pleasant Grove
Palmer, W. A	Hetland, N. D.
Page, H. A	Pleasant Grove
Patten, H. G	Charles City, Ia.
Paulson, G. C	Elbow Lake
Patmore, H. L	Brandon, Man.
Pauly, Nick	Chanhassen
Patten, A. W	Mora
Parson, N	Northfield
Parkhill, Robt	Chatfield
Parks, W. S	Thorpe, Wis.
Pabody, E. F	Zumbra Heights
Patterson, Dr. R	Barnesville
Palleson, P	Osakis
Parker, W. L	Farmington
Paasch, H. J	Mpls
Perry, P. H	Excelsior
Penney, John	Centuria, Wis.
Perkins, T. E	Red Wing
Penning, Martin	Sleepy Eye
Pederson, P. A	Benson
Peterson, John G	Kensington
Peiffer, Rev. N. J	Eden Valley
Pederson, Paul	Constance
Peterson. O. M	Albert Lea
Pederson, O. O	Harmony
Peterson, Joseph	Lake Crystal
Pettes, Chas	Madelia
Peterson, Geo. R	Collis
Pendergast, R. H	Duluth
Peterson, P. H	Atwater
Peterson, S. S	Mpls
Persons, C. O	Millersburg
Pederson, A. W	Confrey
Peterson, Sophus	Albert Lea
Peterson, F. F	Albert Lea
Peterson, F. J	Waconia
Peterson, C. O	Afton
Peterson. Peter	Afton
Person, E. S	Zumbrota
Peterson, H. A	Sacred Heart
Peterson, C. F	Renville
Pearson, Louis	Robbinsdale
Peterson, J. A	Kensington
Peterson, Jno. Alf	Chisago City
Peterson, J. G	Montevideo
Peterson, Carl F	Storden
Peterson, Andrew	Fertile
Pettis, E. E	Parma, Idaho
Peterson, C. B	Litchfield
Pengilly, Jas	Shakopee
Peterson, J. W	O'Neill, Neb.
Pedersen, H. C	Hopkins
Peterson, K. K	Rothsay
Peterson, W. A	St. Anthony Park
Peterson, Chas	Lindstrom
Pears, James	Hartstown, Pa.
Peterson, V. C	Renville
Peterson, Gunerus	Fairfax
Peterson, C. N	Kandiyohi
Peterson, Theo. S	Boyd
Peterson, J. A	Constance
Peterson, P. O	Constance
Peterson. Peter	Cambridge
Perry, George S	Farmington
Pettijohn. L. W	Minnetonka
Pfeiffer, Rev. Chas	Long Prairie
Pfeister, John M	Marietta
Pfeiffer, Fred	Morton
Pfaender, Wm., Jr	New Ulm
Phillips, Barney	Pelican Rapids
Phillips W. B	Ashland, Wis.
Pineo. Dr. Willard B	Mpls
Pinkert, Paul	Milbank, S. D.
Plant, Jas. T	Mora
Plows, Featherstone	Finlayson
Pond, E. R	Mpls

Poussin, G. W	Onegum
Powers, T. S	Grand Rapids
Polkow, Herman	Springfield
Pomrov, J	Ortonville
Powell, J. L	Crookston
Potter, A. H	Mpls
Pope, Jed	Caledonia
Price, John W	Lamberton
Probstfield, R. M	Moorhead
Prosser, L. W	Le Roy
Pray, J. W	Mpls
Pritchard, W. W	Thief River Falls
Prescott, E. W	Myers Falls, Wash.
Proehl, Herman	Parkers Prairie
Prat, F. E	Paynesville
Ramsden, J. W	Homer
Ray, Mrs. J. W	Mpls
Rainey, J. R	White Bear
Raines, John	Orris
Ramer, P. B	Canton
Ransom, M. A	Annandale
Raussen, E. A	Annandale
Radloff, E. A	Essig
Rauden, Peter	Hoffman
Radabaugh, A. C	Mpls
Rauden, Gilbert	Hoffman
Rasmusson, E. R	Svea
Rains, Dr. J. M	Willmar
Ray, John W	Cottonwood
Reynolds, M. H	St. Anthony Park
Reed, A. H	Glencoe
Redpath, Thos	Wayzata
Rentz, Fred J	Morris
Reed, E. J	Vernon Center
Revier, Chas	St. Peter
Reil, J. H	Brownton
Reed, F. E	Glenwood
Reed, S. J	Webster, S. D.
Reeves, Vincent	Mpls.
Reeder, S. G	Sauk Rapids
Reid, E. W	St. Paul
Read, Thos. M	Mpls.
Richardson, I. E	New Brighton
Richard, D	Eden Prairie
Ringen, Carl A	New London
Rice, Alfred	Pine City
Rice, Carl J	Peever, S. D
Ritchie, Leroy	Annandale
Riley, Chas	Grove Lake
Riley, Frank	Westport
Ritter, C. H	Plainview
Ridgeway, J. L	Alpha
Richards, D. W	Hewitt
Rice, F. O	Northfield
Risjord, Dr. J. N	Fertile
Ringle, H. L	Sanborn
Robertson, H. R	Crookston
Rowell, H. H. S	Mpls.
Rogers, W. P	Excelsior
Robertson, Mrs. Wm	Crookston
Rowe, Chas	Maple Plain
Robinson, M	Mpls.
Rohann, Mrs. M. A	Mpls.
Robinson, R	Champlin
Rowell, L	Farmington
Robertson, Adolph	Appleton
Rotho, John T	Farwell
Rosengren, Frank	Farwell
Remberg, Frank	Sleepy Eye
Rodebuhr, Wm	Deer Creek
Rockwood, Eli	Madelia
Robertson, Prof. Wm	Crookston
Rougen, L. J	Fertile
Rosenwald, J. F	Madison
Robey, M. E	Sandstone
Russell, E. B	Mpls.
Russell, J. A	Rice
Russell, E. T	Hewitt
Rudser, S. J	Hendrum
Ruggles, A. G	St. Anthony Park
Ruble, C. H	Albert Lea
Ryan, T	Minnetonka
Rystrom, J. G	No. Branch
Ryden, Ed	Bernadotta

Sargent, C. A	Red Wing
Sandrock, Wm	Rushford
Sahler, Emil	Waseca
Sandborn, V. M	Canby
Sanden, Ole	Harmony
Safe, F. E. G	Cannon Falls
Sannes, Ole	Fosston
Savage, Rev. Ed	Windom
Saunders, R. C	Pine City
Salthe, Karl	Adrian
Sanders, J. J	Milaca
Salmonson, Jacob	Cokato
Sanderson, Theo	Rock Dell
Sagren, Hans	Henning
Sartell, Mrs. Jos. B	St. Cloud
Schwyzer, Dr. H	St. Paul
Schmidt, Albert J	Norwood
Scott, Wm	Lake Wilson
Schutz, R. A	Le Roy
Scholtz, L. S	Excelsior
Schmidt, Edward	Mankato
Schultz, John J	Sleepy Eye
Schain, Otto P	Lamberton
Schotzko, F. E	Springfield
Scott, Wm. G	Winnipeg, Man.
Schedin, Alfred	Wheaton
Schlimmer, August	Chisago City
Schiebe, Chas	Minnetonka
Schwartz, Nicholas	Sleepy Eye
Schwab, Jacob	Anoka
Schmit, Julius	Nicollet
Schulte, Frank	Eagle Lake
Scrivseth, L. T	Russia
Schaumberg, J. H	Sanborn
Schmidt, Casper	Eden Valley
Schmidt, P. G	Northfield
Schroder, Carl	Wabasso
Schutt, F. C	Sleepy Eye
Schluter, Ernst	Hutchinson
Scherlie, H. A	Dundee
Schott, Oscar	Franklin
Schamukessel, Carl	Lakefield
Schold, Rev. E	Strandburg, S. D.
Semling, Edwin	Neilsville
Seifert, Joseph	Lamberton
Seiler, John M	Excelsior
Severson, Sam	Constance
Severson, Alfred	Constance
Severson, Tom M	Constance
Searles, F. M	New Brighton
Sebbert, Mrs. J. H	Annandale
Settle, H	Cologne
Seiter, H. F	Tracy
Setzer, P	Blooming Prairie
Selvig, C. C	Willmar
Shelley, T. E	Hanska
Sharpness, Ole J	Murdock
Shattuck, Benj. N	Whalan
Share, J. O	Albert Lea
Samso, A. D	Grand Meadow
Schumway, H. E	Appleton
Shannon, Rob't	Annandale
Shaugeseth, John	Kensington
Shaw, Prof. Thos	St. Anthony Park
Schelp, W. W	Bellingham
Sherman, W. H	Windom
Shaw, O. W	Austin
Shave, A. S	Hawley
Shave, Walter	Hawley
Shoen, A. J	Burtrum
Shaver, Clark	Redwood Falls
Shuman, H. W	Excelsior
Sherlock, J. B	Ayrshire, Ia.
Shepley, F. M	Farmington
Siewert, C. E	Hopkins
Simmons, Harold	Howard Lake
Simonson, John	Constance
Simonson, Andrew	Constance
Simmons, H. L	Fargo, N. D.
Siegle, Simon	Carver
Simonson, P. T	Starbuck
Simpson, Hon. David F	Mpls
Sioberg, August	Scandia
Simpson, Geo. C	Northfield

Skatterud, E. O	Dawson
Skyette, C. J	St. Paul
Skinnemoen, Nels S	Wendell
Skaar, N. O	Zumbrota
Skinnemoen, Ole	Wendell
Skal, T. H	Glyndon
Skoglund, W. O.	St. Anthony Park
Slingerland, T. S	Kasson
Smith, S. B	Foreston
Smith, W. R	Anoka
Smith, Lyman	Wayzata
Smith, F. C	Plum City, Wis.
Smith, E. A	Lake City
Smith, Thos. C	Lakeville
Smith, L. A	Montevideo
Smener, Mrs. Fred	Norwood
Smith, B. H	Big Stone
Smith, E. W	Wrightstown
Smith, R. W	Lake Park
Smith, B. W	Mpls
Smith, D. C	Winnebago City
Smith, Hon. John Day	Mpls
Smith, L. Z	Mankato
Smith, W. H	Farmington
Smith, L. C	Langdon, N. D.
Snyder, C. E	Preston
Snyder, J. N	Marietta
Snyder, Prof. H	St. Anthony Park
Snyder, F. M	Freeborn
Snyder, C	Adrian
Sodergren, R. A	Scandia
Sorenson, S	Buena Vista
Socwell, Rev. E. H	Adams Center, N. Y.
Sommers, J. C	Northfield
Soule, C. B	Deer Creek
Sohlberg, Dr. O	St. Paul
Sowold, Andrew	Hitterdal
Solem, Rev. O. A. Th	Halstad
Southmayd, R. W	McIntosh
Solomonson, Herman	Ulen
Spaulding, Albert	Wanda
Spates, S. R	Wayzata
Sprague, Mrs. L. E. P	Mpls.
Sprague, Clifford	Madelia
Sprague, J. M	Madelia
Sprung, H. J	Ada
Sperry, A. H	Willmar
Spickerman, C. W	Excelsior
Stitzel, O. J	Hewitt
Stephen, E. F	Crete, Neb.
Stockwell, S. A	Mpls.
Stein, John	Cokato
Strander, C. C	Crookston
Stevens, Mrs. W. L	Good Thunder
Stenger, Rev. P	Zealand, N. D.
Stellar, G. F	Excelsior
Starr, O. A	Eureka
Stenstrum, John	Dunnell
Stromgren, Abel	Cedar
Steen, John	Triumph
Steffin, Wm	Scriven
Strom, Otto	Murdock
Stevenson, A. P	Nelson, Man.
Street, A. H	Albert Lea
Stensrud, Ole	Watson
Studer, H. G	Danube
Stark, C. J	Ortonville
Stoft, J	Mpls
Streeter, I. L	Clitheral
Stone, Eli	Excelsior
Strubel, Wm	Hankinson, N. D.
Street, Chas	Beltrami
Steffens, C. H	Racine
Stout, W. H	Osseo
Street, B. G	Hesper, Ia.
Stanley, D. B	Maine Prairie
Stoeber, W. E	Hawley
Stewart, M. W	London
Stout, Geo. H	Sauk Center
Stone, E. J	Hutchinson
Stalberg, P. H	Harris
Strand, T. C	Ada
Staring, S. S	Mpls.
Strandness, Lamar	Lowry
Stull, E	Pine City
Sundberg, Chas. A	Worthington
Summers, Geo	White Bear
Sulerud, J. C	Halstad
Sveen, M. J	Brackett, N. D.
Swanson, Chas. V	Hinckley
Swenson, Albert	Chisago City
Swanson, C. E	Cannon Falls
Swenson, John	Scandia
Swedberg, James S	White Bear Lake
Swan, J. W	White Bear
Swanson, R. J	Constance
Swenson, Aaron H	Alpha
Swanson, N. P	Murdock
Sweet, A. W	Litchfield
Swenson, Albert	Watson
Swenson, F. K	Ortonville
Swartwood, W. E	Mpls
Swanson, C. W	Lafayette
Swanson, J. H	St. James
Swain, J R	Mpls
Swenson, Solomon	Winthrop
Swenson, Chas	Braham
Swenson, Gunder	Norway Lake
Swift, Geo. E	Robbinsdale
Swenson, Theo	Isanti
Swift & Co	South St. Paul
Swanson, H. N	Minnetonka
Synoground, N. O. P	Groton, S. D.
Sydow, Richard	Sanborn
Sydlinker, C	Monticello
Tanner, U	Cannon Falls
Talcott, Mrs. A. L	West Brook
Taylor, W. L	Howard Lake
Taylor, G. D	Henning
Taft, Guy	Bloemendal
Taylor, S. P	Boyd
Taber, Wm	Duluth
Teachout, Mrs. G. M	Mpls
Temple, I. W	Morristown
Tew, D. J	Rushford
Teigen, Geo	Lowry
Tellven, Otto	Litchfield
Teed, Wm. M	Windom
Tenti, Carl	Princeton
Thomas, Geo. O	Mabel
Thompson, R. C	Kasota
Thompson, Mrs. J. B	Wayzata
Thompson, A. E	Mpls
Thompson, O. C	Farmington
Thompson, Christ	Franklin
Thorp, L. S	Hillsboro, N. D.
Thompson, Elbert H	Excelsior
Thompson, Frank	Constance
Thorson, E	Brandon
Thompson, C. M	Adrian
Tharaldson, Osmund	Starbuck
Theilman, Geo	Excelsior
Thomson, E. B	New Rockford, N. D.
Thoostenson, L. O	Hawley
Thum, I. M	Hawley
Thornberg, J. O	Stanchfield
Thygeson, N. M	St. Paul
Tingley, W. J	Withrow
Tift, C. M	Glencoe
Tomlinson, Wm	Hutchinson
Tobias, Geo	Red Wood Falls
Town, Mrs. Francis L	Newberg, Ore.
Tomalen, W. H	Kildonan, Man.
Torgerson, Theo	Coon Valley, Wis.
Tousignant, Denery	Mendota
Towle, P. J	St. Paul
Tostenson, T. E	Voltaire, N. D.
Tolefson, Theo	Madelia
Tollefson, M. C	Willmar
Treat, James E	New Brighton
Traaen, Gul	Spring Grove
Trenham, N. J	Alexandria
Turner, H. H	Northfield
Turnbull, John	La Crescent
Tuff, John P	Crookston
Tuttle, H. B	Tomah, Wis.
Tuve, S. O	Fergus Falls
Tucker, J. J	Wadena

Tuman, Wells	Dassell
Twitchell, W. G	Correll
Tyrell, D. T	St. Anthony Park
Tysse, Ole J	Fertile
Tyrell, T. F	Otisville
Upton, J. H	Cresco, Ia.
Ulland, O. F	Pelican Rapids
Unze, Geo	Shakopee
Uglem, Ole H	Princeton
Vallquist, Rev. R	Holmes City
Van Tuyl, C. W	Mpls.
Van Ness, Garrett	Bloomington
Van Vliet, C	Northfield
Van Hoesen, F. B	Alexandria
Vaugen, Peter O	Climax
Vandergon, D. D	Maple Lake
Vanasek, T. F	New Prague
Van Valkenburgh, E. P	Cedar
Vandewater, M. W	Osage
Van Nest, R. A	Windom
Van Hoesen, F. B	Alexandria
Van Loon, John	La Crosse, Wis.
Veit, Fred	Fergus Falls
Velie, C. D	Mpls
Viktor, J. A	Cedar Rapids, Ia.
Vial, Roy	Spring Valley
Valsted, P. H	Kenyon
Voight, L. H	Hastings
Voxland, George	Kasson
Voltin, Jos	Fairfax
Vrolson, J. W	High Landing
Walter, Fred	St. Charles
Wampler, A. J	White Bear
Walrath, H. D	Watertown, S. D.
Walgren, Swan J	Willmar
Warren, E. C	Lake City
Warren, W. J	Esterville, Ia.
Washburn, Prof. F. L	St. Antheny Park
Wachlen, Wm	Fairbault
Wadsworth, H	Glencoe
Walden, J. M	Northfield
Ward, F. A	Pipestone
Wallace, Ira	Madelia
Walter, H. A	Ortonville
Wangen, J. T	Cannon Falls
Wanderaas, I. K	Maplebay
Walstead, Theo	Kron
Walton, E. G	Mpls
Waite, Ed. F	Mpls
Warren, Albert	Hinkley
Walz, Michael	Perham
Wagner, J. A	Hastings
Wasgatt, F. G	Winnebago City
Ward, Myra	Zumbrota
Wagner, A. J	Waterville
Waldum, Edw. O	Artichoke Lake
Wells, R. J	Sioux Falls, S. D.
Westerholm, M	Hutchinson
Westergard, Peter J	Belgrade
Weeks, Canute	Vermillion, S. D.
Webb, Jacob	St. Cloud
Weld, J. O	Mound
Wedge, Clarence	Albert Lea
Webster, D. C	La Crescent
West, Miss Martha B	St. Anthony Park
Westfield, Kasper	Canby
Wegner, Frank	Mentor
Weber, C. J	Blue Earth
Webel, E. P	Granite Falls
Webb, H. L	Glyndon
Westberg, J. P	Kensington
Wedge, Robt	Albert Lea
Wells, C. W	Mpls
Werks, Warren	Hawley
Webster, A. A	Lafayette
Welch, J. H	Winnebago City
Wellendorf, Mr	Kanaranzi
White, R. A	Twin Lakes
White, Miss Emma V	Mpls.
Whiting, Geo. H	Yankton, S. D.
Whitney, Mrs. May	Le Seuer Center
Whetstone, Dr. Mary S	Mpls
Wilkins, A. J	St. Anthony Park
Wilfert, Andrew	Cleveland
Williams, Chas	Heart Lake, Pa.
Wilbur, D	Floyd, Ia.
Winter, E. F	Fergus Falls
Wichelman, F. C	Stillwater
Wirtz, Frank	Winona
Williams, A. S	Mpls
Witte, H. L. F	Minnetonka
Wichler, J. V	Owatonna
Wicklund, John	Kandiyohi
Witter, E. A	Morristown
Wilkinson, Mrs. Louis M	Owatonna
Wilwerding, A	Freeport
Williams, D. G	Constance
Wieland, R. G	Park River, N. D.
Willnitz, Wm	Rockford
Wistrand, Harry	Excelsior
Wipps, L. L	Le Sueur Center
Wieland, H. P	Fisher
Williams, Roy F	Wheaton
Wise, H	Appleton
Wiehr, Aug	Buffalo Lake
Wick, Oscar	E. Grand Fork
Wilson, Oscar	Underwood
Wishart, J. N	Mapleton
Wise, Harry	Deerwood
Wiens, C. C	Bingham Lake
Wilson, Fred	Mpls
Willers, J	Luverne
Wiese, J. A	Lake Park, Ia.
Williams, Mrs. Geo	St. Paul
Wiens, Peter	Bingham Lake
Wilder, Chas	Crookston
Wiese, E	Ellsworth
Wilcox, E. W	White Bear Lake
Wilson, Mrs. Geo. W	Rockford, Ia.
Woodman, Elmer	Princeton
Wold, John K	Blooming Prairie
Wood, A. L	Rothsay
Wood, Joseph	Windom
Wolter, Fred	St. Charles
Woodward, F. E	Bay Lake
Wold, A. W	Constance
Wolf, J. W	Johnson
Wolf, J. H	Johnson
Worthington, Enos	Pine Island
Wordes, John	Renville
Woodbury, Ed	Zumbrota
Wold, P. A	Newhouse
Wright, A. N	Owatonna
Wray, W. M	Mpls
Wuollet, Oscar	Cokato
Wyen, E. P	Spring Grove
W··ttenbach, I	Findlayson
Young, A. P	Scandia
Yegge, C. M	Alpena
Yahnke, Frank	Winona
Young, W. E	Owatonna
Youngberg, C. A	Cannon Falls
Yates, I. B	Madelia
Yaeger, J. H. W	Sanborn
Yoerg, Anthony	St. Paul
Yeager, C. H	Underwood, N. D.
Zindel, Dr. Albin	Lamberton
Zuercher, Fred	Excelsior
Zieglor, C. E	Dawson
Zamboni, Ed. C	Owatonna
Zachmann, Frank	St. Michael Station
Ziehl, A	Hawick
Zitman, Rev. Aug	Morristown
Zarth, Carl	Jordan
Zeller, John	New Ulm
Alin, Alex	Fullerton, N. D.
Anderson, G. A	Renville
Arnold, L. B	Duluth

HONORARY MEMBERS FOR 1905.

Ferris, J. C	Hampton, Ia.
Erwin, Prof. A. T	Ames, Ia.

LIFE MEMBERS.

Baker, Geo. A	Janesville
Briggs, A. G	St. Paul
Burtslaff, Paul	Stillwater
Cady, Le Roy	St. Anthony Park
Cashman, M. R	Owatonna
Cashman, Thos. E	Owatonna
Christianson, P. C	Fairmont
Clark, Chas. B	Mpls
Cline, Wm	Bertha
Cummins, J. R	Eden Prairie
Daniels, R. L	Stillwater
Danforth, Wm	Red Wing
Dartt, R. M	Owatonna
Dickerson, Wm. L	Richland, S. D.
Doughty, J. Cole	Lake City
Dunsmore, Henry	Olivia
Dunwoody, Wm. H	Mpls
Eliason, M. A	Artichoke Lake
Engman, Nels	Mayer
Evans, Sheldon J	La Crescent
Fletcher, F. F	Mpls
Foster, Wesley S	Milaca
Franklin, A. B	Mpls
Gardner, Chas. F	Osage, Ia.
Gjemse, L. J	Cannon Falls
Hagen, O. W	Sleepy Eye
Hall, D. S	Buffalo Lake
Harris, E. E	Onlaska, Wis.
Harris, F. I	La Crescent
Harrison, Rev. C. S	York, Neb.
Hart, W. H	Owatonna
Hawley, T. C	Old Orchard, Mo.
Hawkinson, Chas	Excelsior
Hermanson, Herman	Hopkins
Hobart, A. W	Mpls
Hoverstad, T. A	Dennison
Howard, J. A	Hammond
Hunter, C. C	Mpls
Irish, H. C	St. Louis, Mo.
Jerabek, J. S	Silver Lake
Jewett, R. H. L	St. Paul
Johannesson, L	Beltrami
Johnson, Gust	Mpls
Kankel, Otto	Fertile
Larson, C. L	Winthrop
Lien, Thos. J	Delavan
Loring, A. C	Mpls
Loring, Mrs. C. M	Mpls.
Loose, E. C	Luverne
Lowry, Thos	Mpls
Lund, I. E	Hopkins
Lyman, A. B	Excelsior
Sapiding, Albert	Wanda
Mann, W. P	Dodge Center
Manner, C. J	Anamoose, N. D.
Manning, W. H	Boston, Mass.
Marshall, F. F	Grove City
McCauley, T. B	Montreal, Can.
McCulley, Preston	Maple Plain
McComb, Richard	Brandon, Man.
Melinat, Rev. Max	Ornsby
Mo, Hans	Sleepy Eye
Mackintosh, Prof. R. S	Auburn, Ala.
McKibben, A. T	Ramey
McTeague, Rev. T. M	Preston
Nagel, Eggert	Mpls.
Neil, V. A	Mound
Nelson, A. A., Jr	Atwater
Nehring, Edw	Stillwater
Norwood, F. F	Balaton
Nussbaumer, Fred	St. Paul
Peterson, Wm. A	Chicago, Ill.
Peet, Wm	Mpls
Peterson, Geo. A	Canby
Pond, H. H	Mpls
Poore, Hamlin V	Bird Island
Pracna, Frank	Mpls.
Quammen, Ole S	Britton, S. D.
Randall, E. W	Hamlin
Scott, Rev. W. T	Colfax, Wis.
Scranton, Ellsworth	Montrose
Schaupp, Chas. F	Wilson
Schell, Otto	New Ulm
Secor, David	Winnebago City
Sherman, E. M	Charles City, Ia.
Sieverts, Peter	Canby
Smiley, Daniel	Mohawk Lake, N. Y.
St. John, B. E	Fairmont
Stager, Mrs. Jennie	Sauk Rapids
Strand, G. W	Taylor's Falls
Swanson, Aug. S	St. Paul
Swanson, J. H	St. James
Stensrud, Hans	Watson
Swenesse, Knute	Minneota
Tanner, Wm	Cannon Falls
Teigland, J. L	Minneota
Terry, Alfred	Slayton
Thomas, A. A	Chicago, Ill.
Thompson, Mrs. Ida	Duluth
Trow, A. W	Glenville
Underwood, Mrs. Anna B	Lake City
Underwood, Roy	Lake City
Warren, W. T	Woodstock
Westman, H. G	Sandstone
Wheeler, C. F	Excelsior
Wheaton, D. T	Morris
White, J. C	Mabel
Williams, M. M	Little Falls
Wright, R. A	Excelsior
Yanish, Edward	St. Paul

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Bush, A. K	Mpls
Brand, O. F	Fairbault
Coleman, N. J	St. Louis, Mo.
Corp, Sidney	Hammond
Day, Ditus	Aurora, Ia.
Elliot, Wyman	Mpls
Gaylord, Edson	Nora Springs, Ia.
Gibbs, Oliver	Melbourne Beach, Fla.
Hansen, Prof. N. E	Brookings, S. D.
Henry, Forest	Dover
Kenney, S. H	Waterville
Kramer, J. C	La Crescent
Lacy, Charles Y	Longbeach, Cal.
Luedloff, Chas	Cologne
Latham, A. W	Mpls
Lord, O. M	Minnesota City
Lyons, Wm	Los Angeles, Cal.
Manning, Mrs. J. W	Reading, Mass.
Mendenhall, R. J	Mpls
Oxford, Wm	Freeburg
Patten, C. G	Charles City, Ia.
Philips, A. J	West Salem, Wis.
Phoenix, F. K	Delavan, Wis.
Richardson, S. D	Winnebago City
Smith, Truman M	San Diego, Cal.
Sias, A. W	Harbor View, Fla.
Smith, C. L	Spokane , Wash.
Sargeant, Mrs. H. B	Lake City
Somerville, Wm	Rochester
Stewart, Amasa	Lamarque, Tex.
Tilson, Mrs. Ida	West Salem, Wis.
Underwood, J. M	Lake City
Van Cleve, Mrs. C. C	Mpls

LIFE MEMBERS DECEASED IN 1905.

Knapheide, Rudolph	St. Paul
Tuttle, A. G	Baraboo, Wis.
Dedon, W. S	Taylors Falls
Budd, Prof. J. L	Ames, Ia.

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